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# Railway Age



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## A Merry Christmas

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# Railway Age

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# "UNION" REMOTE CONTROL REPLACES A MECHANICAL PLANT— —and eliminates many traffic delays

**W**ITH train movements over gauntlet tracks directed by remotely controlled signals following an installation of "Union" Remote Control, an officer of the railroad said: "We are enjoying the benefits of this installation and you have no idea of what a relief it is to have it in service now when there

is a heavy movement of traffic in both directions."

There are many localities where "Union" Remote Control can speed up traffic, eliminate delays and effect large savings. And it will fit into any future signaling program, such as C. T. C. Shall we furnish you complete details?



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## RAILWAY AGE

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# A Little Self-Criticism Would Be a Big Help

A dictator could—and probably would—solve the difficulties of the railroads in 24 hours. Mr. Roosevelt, as long ago as 1932 when he was first a candidate for the Presidency, showed that he had a clear grasp of the issues involved. Mr. Roosevelt or any other intelligent man who might be given the powers of a dictator would clear up in short order hundreds of situations upon which thousands of men are spending many man-years of high-priced time in discussion that is largely pointless and futile.

The trouble with inviting a dictator in to clean up a political mess is—who is going to clean up after the dictator? With all its wastefulness of human energies, democracy coupled with private property and private enterprise can in the long run do better than any dictatorship because, year in and year out, it releases more human energy than a dictatorship does. Under conditions of warfare, to be sure, the dictatorships do become powerfully energetic—but, in times of peace, only a democracy with free private initiative offers men enough incentive to bestir themselves to unusual productive effort, because it is only under democracy and free private enterprise that greater productive effort will bring proportionate rewards.

But the situation of America and the other democracies today, in contrast with the dictatorships, is not that of a long siege. The dictatorships are in a state of war—the condition which gives them their highest efficiency. In that condition, they are looking about constantly for somebody to pick on. And what is a more tempting prey than a nice fat democracy, so torn with internal dissension that—with the wealth of the world in its lap—it is actually poorer in every way today than it was ten years ago?

### Why the Railroad Problem is Difficult

As a publication devoted to the interests of the railroad industry, we offer no apologies for getting over into the realm of politics and morals and international

affairs in our discussion—because that is where the solution of railroad difficulties now lies. Transportation and politics are hopelessly intermingled. Therefore, ineffective and dishonest political behavior inevitably means trouble for the transportation business. And you cannot have honest and effective political action in a democracy without decent morals on the part of people who wield political power. What is wrong, then, with the methods so far followed in the effort to surmount the difficulties of the railroads?

The thing that is wrong is that while every interest concerned agrees that it would lose by the adoption of government ownership, each interest insists that other interests must make *all* the concessions that may be made to avoid government ownership. No single interest seems willing to make the slightest sacrifice to save private ownership, regardless of how much more it would gain than lose by having private ownership saved, although every interest cheerfully demands that all other interests shall make needed concessions.

The present wide-spread discussion of the situation of the railways might be accurately pictured as a circle of individuals, each representing one of the many interests in transportation—labor, management, investors, competitors, politicians, shippers. Each individual in the circle would show signs of having suffered a severe drubbing and would be pointing an accusing finger at all the others, saying: "He done it." The truth of the matter is that each of the individuals making that accusation would be dead right. There is no party to the present railway situation who is not in some measure responsible for the sorry mess that it is. The trouble is that each party is devoting all its energies to the impossible task of reforming all the other parties, overlooking the job of cleaning up its own premises. As long as that is their attitude the objective of saving private ownership will have a poorer and poorer chance of attainment. Set out to clean up other people, and the result is usually a fight. But no one objects when one does his reforming at home. Viewed in this light,

the difficulties of the railroads have plainly a moral aspect.

### Why Not Try a Little Honesty?

What, then, to do about it? The United States Sugar Corporation, under legislation providing for a bounty to sugar beet producers, in a recent year drew the largest bounty check—\$1,250,000—which had ever been issued. Nevertheless, Clarence Bitting, in behalf of this company, testified as follows: "We desire to record our objection to legislation that legalizes a raid, by special interests, on the public treasury, even if, as this legislation provides, we are entitled to membership in the raiding party." (Our information is drawn from an article by Francis A. Harding in the current issue of "The American Scholar.")

We submit that in those words Mr. Bitting has offered the only solution there is to the difficulties of the railroads. The principles of sound economics and honest politics do not vary from one industry to another, nor are they any different for one of the factors of production (land, labor, capital and managerial skill) than they are for all the others. Mr. Bitting uttered a statement of principle which accords both with sound economics and honest politics. Hence it is just as applicable to transportation as it is to the production of sugar, and it is being violated in transportation just as it is being violated in sugar.

"Raids" by the use of political power are constantly occurring in the transportation industry—but, as far as we know, none of the "raiders" have, like Mr. Bitting, offered to relent.

The "raiding" with the assistance of political power is, moreover, much more widespread in the transportation business than it is in sugar. That is to say, the "raids" are not on the public treasury alone, but they go further, and put political force behind some groups of citizens, authorizing them to prey upon other groups—taking their property away by force, but under the form of law.

This is the Christmas season; we are not going to pillory anybody. But, in the spirit of this season, we suggest that the representatives of every class of interests which have anything to do with transportation forget for a moment the shortcomings of the "other fellow" and concentrate upon their own. How many of them can honestly say, as in effect Mr. Bitting did: "We are not willing to use political power to gain any advantage, either at the expense of the taxpayers, or at the expense of any other group or class in the transportation industry, to which competent and impartial economists would deny we are entitled?"

### Questions for Managements, Investors, Labor

Not to be self-righteous, while imputing unsound policies to other groups in the transportation business,

we ask ourselves as publishers serving the railroad industry the above question. We answer, in all humility, that, while we have always tried to consider the welfare of society as a whole, it is quite likely that we have at times overlooked the fact that transportation exists for society, rather than vice versa. And by way of penance for such oversight, if any, we invite frank criticism at all times from our readers—and a promise that all such criticism will be objectively considered.

Having subjected ourselves to this catharsis, we invite every other interest in the transportation industry to do the same—on the theory that, if every part of the business will purge itself of its own errors, the whole will inevitably be restored to health.

So how about it, railway managers? Are all managers above using a political or other unfair advantage as a weapon in competition?

And manufacturers of railway materials? Would they rather restore their business the hard way, by putting an end to all transportation subsidies—or are they tempted to the easy way of subsidies for the railroads, too, just because that seems quicker?

And railway investors—and particularly institutional investors, since they are about the only ones able to become forcefully articulate? Has politics made such cowards of them that they are fearful of defending openly the investments for which, morally, they stand in the position of trustees.

And railway labor? Are its policies completely free of the use of its great political power to take something for some of its members at the expense of depriving other members of a means of livelihood? Has the share labor receives of the earnings of the industry been growing at the expense of its partners in it—and, if so, has this larger share come to it naturally as a reward for a larger contribution to production, or on the other hand, has labor *taken* it from others by political force?

### And Why Racketeering of the Taxpayers for Subsidies?

And highway and waterway carriers (including suppliers of vehicles and fuel for such carriers)? Do they honestly believe (and, if so, upon what competent advice) that it is to the public advantage for the smaller part of the public which patronizes their services to do so largely at the expense of the larger public in the form of taxes? Are they using their political power to correct this situation or to perpetuate it?

And shippers? Are they using their political power to secure an immediate tax-paid subvention of their legitimate shipping bills, to give them an advantage over their competitors, or are they, instead, using their political power to foster the development of the most economical transportation machine for the people as a whole?

And political office holders (including regulatory

authorities)? Are their policies regarding transportation determined primarily by their desire to hold their jobs? Or do they, on the other hand, realize that they are the trustees of this country's tradition of democratic government—and do they believe that perhaps it might even be worth some risk to their jobs to maintain that tradition in the world as an example to its detractors?

The facts about the railway situation—and all the rest of the transportation industry—are adequately known. But so little progress is being made toward a solution, because the *will* to remove the difficulties does not exist.

Each interest is quite willing to have every other interest sacrifice every fancied advantage it has in the present situation—but what interests will willingly make concessions of their immediate advantages, to restore health to the industry as a whole?

### Pressure Groups Versus Democracy

Would the interests so earnestly defending their "advantages" prefer to make concessions voluntarily, or would they perhaps rather have all the "edge" they now have wiped out under the rule of a dictator? This is not, of course, an immediate danger—but let no one believe that it is indefinitely remote. The weaker the democracies become by reason of internal dissension, the more willing the dictatorships become to risk a war. And modern warfare, as everyone knows, suspends democracy. One more such suspension in this country and it may never return again. The petty frame of mind which prevents a solution to the railroad problem is exactly the same which is preventing recovery in the utilities—and the depression in these two industries is the principal obstacle in the way of national economic recovery.

Leslie Craven says in his thoughtful article on the railroads in the December "Atlantic Monthly": "Our democracy cannot live if it cannot work out the nation's problems. How far it will solve its problems will depend on how far its action can be objective-minded and in accordance with principle." Mr. Craven urges the government to proceed with a solution to railroad problems by acting on principle, ignoring the "pressure groups." We agree with him in large measure—but we fear it is futile to expect a higher degree of principle and morality from elected politicians than is manifested by the people who elect them. A stream seldom rises higher than its source. The necessary reform ought to originate in the "pressure groups" themselves.

At this Christmas season, we appeal to these "pressure groups" in recognition of the blessings which we do enjoy on this continent, to exert their "pressure" henceforth in a manner to restore prosperity to this industry and thereby to do their duty toward preserving the liberties of the American people.

## Budgetary Control Of Maintenance Outlays

There has never before been a time when it was as necessary as it is today to control railway expenses so closely with relation to revenue. The necessities for such control on the side of economy are obvious—that is, unless expenditures are kept closely within revenues, some railroads at least would soon find themselves without enough cash to continue operation. Most roads, however, which find rigid economy a necessity, are also faced with an urgent need to make maintenance expenditures just as large as their resources permit—because such work, unduly delayed, costs more than when it is done promptly. Hence, early knowledge of what gross revenues are going to be is quite as essential to permit the economical increase of expenditures as it is to restrict them.

There will not be much question as to the desirability, on most roads, of maintaining a close rein upon expenditures in relation to revenues. Clearly, a close pre-estimate of revenues is indispensable to the accomplishment of this purpose. When it comes to methods of maintaining such checks, however, probably no two railroads will see eye to eye. There is nothing questionable about some measure of disagreement, because the circumstances of individual railroads differ so widely. But does all the disagreement spring from "peculiar conditions"—or does some of it arise from the fact that some managers, perhaps, may be somewhat more enterprising than others? We do not answer that question, but merely raise it for our readers to answer for themselves.

Whatever their answer may be, no one can question that a wider knowledge by all railroads of the well-thought-out practices of individual carriers would be helpful—if for no other reason than to provide a standard of comparison. So, to give our readers something specific to discuss in this important and timely aspect of management, we are publishing on another page in this issue a description of the procedure followed by the Frisco in budgeting its maintenance of way and maintenance of equipment expenditures—how it estimates its revenues and how it controls its expenses.

The author of this article is E. H. Bunnell, vice-president of the Accounting and Treasury Division of the A.A.R., and formerly the head of the Frisco's accounting department. As the author of this article, however, he writes entirely in his capacity as an expert of long experience in railroad accounting, and not as a spokesman either for the A.A.R. or the Frisco. Mr. Bunnell does not contend, any more than we do, that the methods he describes are as applicable to all railroads as to the peculiar problems of the Frisco, but he joins us in the hope and the belief that a knowledge of some of the features will prove suggestive to prac-

(Continued on page 912)



# Passenger Locomotives for the Atlantic Coast Line

High capacity 4-8-4 type power for Florida trains develops 63,900 lb. tractive force — First locomotives with eight-wheel tender trucks

**D**URING the past five months the Atlantic Coast Line has been using 12 new 4-8-4 type passenger locomotives, built by the Baldwin Locomotive Works, on fast passenger runs between Richmond, Va., and Jacksonville, Fla. This motive power has exceptional capacity and was designed to handle 20- and 21-car trains, mostly Pullmans, over a territory where 0.6 per cent grades and three-degree curves are encountered, on schedules where the average speeds are in excess of 55 m. p. h. The locomotives have a starting tractive force of 63,900 lb. The railroad company has designated the group as Class R-1.

From the beginning of their term of service the new power has been handling the "Havana Special" and the "Tamiami." This latter train made its last run on December 14, southbound. In addition to the Havana Special the locomotives are being used now on the "Miamian," which made its initial trip on December 15, and will also be used on the "Florida Special" which goes into service on January 2. The schedule on the Havana Special is 14 hr. 15 min. southbound and 14 hr. 5 min. northbound for the 661 miles between Richmond and Jacksonville, with 10 stops. On the Miamian the time card calls for 11 hr. 45 min. southbound, with two regular and two flag stops, and 11 hr. 55 min. on the night run northbound, without any regular station stops. The Florida Special, when it goes into service, will be operating on the same running time. Both the north and southbound runs of this train will be night runs, with no regular station stops.

## Machinery Details

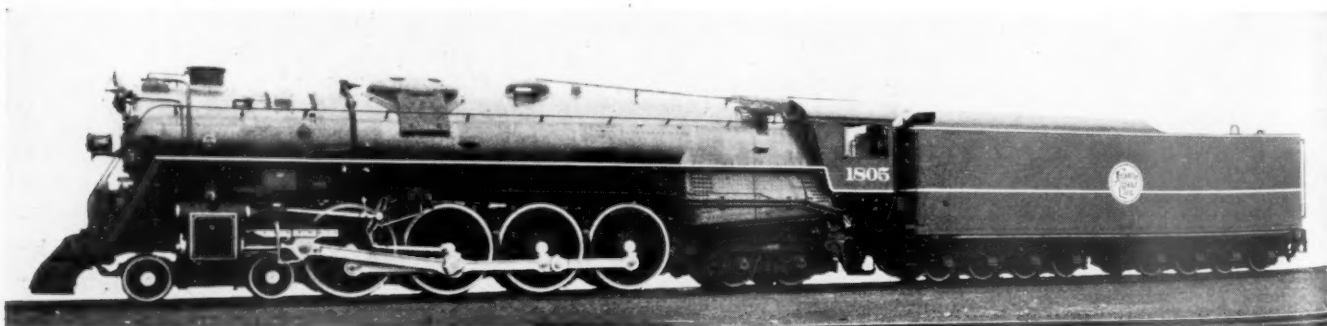
A one-piece bed, supplied by the General Steel Castings Corporation, forms the foundation of these locomotives. Cast integral with the bed are the cylinders and back heads, main reservoirs, brackets for the air compressors, guide and valve-gear supports, brake hangers, firebox expansion pads and brackets for trailer-truck rockers. The steel pilot casting is designed to take a National Type E drop coupler.

The front truck is of the constant-resistance type, with



a swing of 6 in. each side of the center line and arranged for the future application of air brakes. The trucks were built by the General Steel Castings Corporation and have 36-in. wheels, 9 $\frac{5}{8}$ -in. journals and A. S. F. roller-bearing units. The trailing truck is the Delta four-wheel type with 43-in. wheels front and back, and 9-in. by 14-in. journals with plain bearings. It is arranged for the future application of a booster.

The driving wheels are of the Baldwin disc type mounted on axles running in Timken roller bearings. The main journals are 13 $\frac{1}{4}$  in. and the other three are 11 $\frac{1}{2}$  in. The main wheels are cross balanced. Alco



Atlantic Coast Line Class R-1 Locomotive for Fast, Heavy Passenger-Train Service, Built by Baldwin

lateral-motion driving boxes are used on the front drivers.

The reciprocating weights on one side of the engine total 2,241 lb., 40 per cent of which are balanced. The dynamic augment at 80 m.p.h. is 10,780 lb.

The cylinders are two in number, 27 in. bore and 30 in. stroke. The piston valves are 12 in. diameter and have a maximum travel of  $7\frac{1}{2}$  in. The piston heads are rolled steel. Elfur iron cylinder and valve-chamber bushings and packing rings, and King piston and valve-rod packing are part of the cylinder equipment.

The valve gear is Walschaert, operated by a Baldwin Type C power reverse gear. The guides are the multiple-bearing type with underhung cast-steel crossheads, furnished by the Standard Steel Works.

Two Nathan mechanical lubricators, type DV-7, each of 36 pints capacity, placed one on each side of the locomotive, supply oil to the valves and cylinders, the stoker, feedwater heater, main guides, valve stem guides, driving-box pedestals, front and back engine-truck pedestals, back truck floating hub liners, and link trunnions. Alemite lubrication is applied to the valve motion, spring rigging, brake work, connecting rods, throttle rigging and mechanical lubricator rigging.

#### General Dimensions and Weights of the Atlantic Coast Line 4-8-4 Type Passenger Locomotives

Railroad .....	Atlantic Coast Line
Builder .....	Baldwin
Type of locomotive .....	4-8-4
Road class .....	R-1
Road numbers .....	1800—1811
Date built .....	April, 1938
Service .....	Passenger
Rated tractive force, engine, 85 per cent, lb. ....	63,900
Weights in working order, lb.:	
On drivers .....	263,127
On front truck .....	89,343
On trailing truck .....	107,800
Total engine .....	460,270
Tender .....	435,500
Wheel bases, ft. and in.:	
Driving .....	20—9
Engine, total .....	47—9
Engine and tender, total .....	97—11

Driving wheels, diameter outside tires, in. ....	80
Cylinders, number, diameter and stroke, in. ....	2—27x30
Valve gear, type .....	Walschaert
Valves, piston type, size, in. ....	12
Maximum travel, in. ....	$7\frac{1}{2}$

#### Boiler:

Steam pressure, lb. ....	275
Diameter, first ring, inside, in. ....	$84\frac{1}{2}$
Firebox length, in. ....	138
Firebox, width, in. ....	102
Combustion chamber length, in. ....	72
Thermic syphons, number .....	4
Tubes, number and diameter, in. ....	198—2 $\frac{1}{4}$
Flues, number and diameter, in. ....	58— $5\frac{1}{2}$
Length over tube sheets, ft. ....	21
Fuel .....	Soft Coal
Stoker .....	Standard HT
Grate area, sq. ft. ....	97.75

#### Heating surfaces, sq. ft.:

Firebox and comb. chamber .....	399
Syphons .....	169
Firebox, total .....	568
Tubes and flues .....	4,181
Evaporative total .....	4,749
Superheater .....	1,497
Comb. evap. and superheat. ....	6,246

#### Tender:

Style .....	Rectangular
Water capacity, gal. ....	24,000
Fuel capacity, tons .....	27
Trucks .....	8-wheel

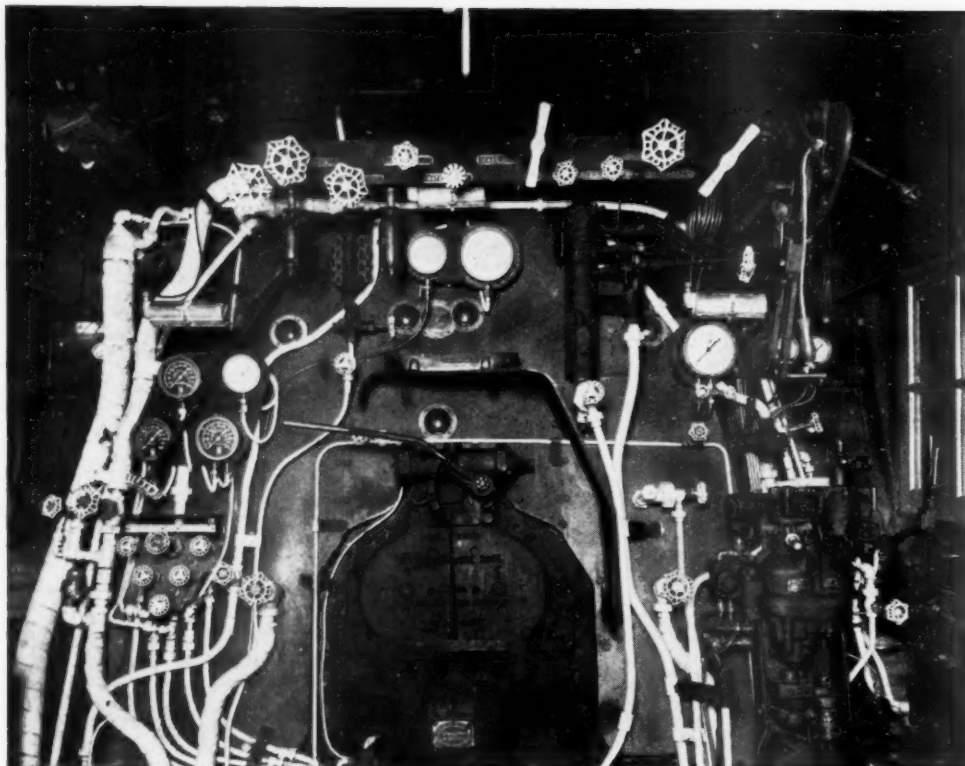
The air-brake equipment is Westinghouse No. 8 ET with two  $8\frac{1}{2}$ -in. compressors mounted on the bed in front of the smokebox. The locomotives are equipped with General Railway Signal intermittent, inductive, auto-manual train control.

Other equipment on the engines consists of Franklin radial buffers between the engine and the tender, Ashcroft steam, back-pressure and air gages, Prime clear vision windows and cylinder cocks, Sunbeam electric headlight and generator, Hancock steam-heat valves and Leslie pressure regulators. Barco flexible connections are used between the engine and the tender and for the blower and stoker steam line.

The boilers are of the conical type, built in three courses. The first and third courses are  $84\frac{1}{2}$  in. and  $96\frac{5}{16}$  in. inside diameter, respectively. The combustion

The Tenders of These Locomotives Have a Water Capacity of 24,000 Gal. and Space for 27 Tons of Coal. They Are the First Tenders to Be Carried on Eight-Wheel Trucks





The Controls and Cab Accessories of the A. C. L. 4-8-4 Locomotive

chamber is 72 in. long. There are 58  $5\frac{1}{2}$ -in. flues and 198  $2\frac{1}{4}$ -in. tubes, 21 ft. over the tube sheets. The firebox plates are acid carbon steel. The firebox width is 102 in., with a length of 138 in. and a grate area of 97.75 sq. ft. The water spaces are 5 in. at the back and sides and 6 in. at the front. Three Thermic syphons are located in the firebox and one on the center line of the boiler in the combustion chamber. No arch tubes are used, the Security brick arch being supported on the syphons.

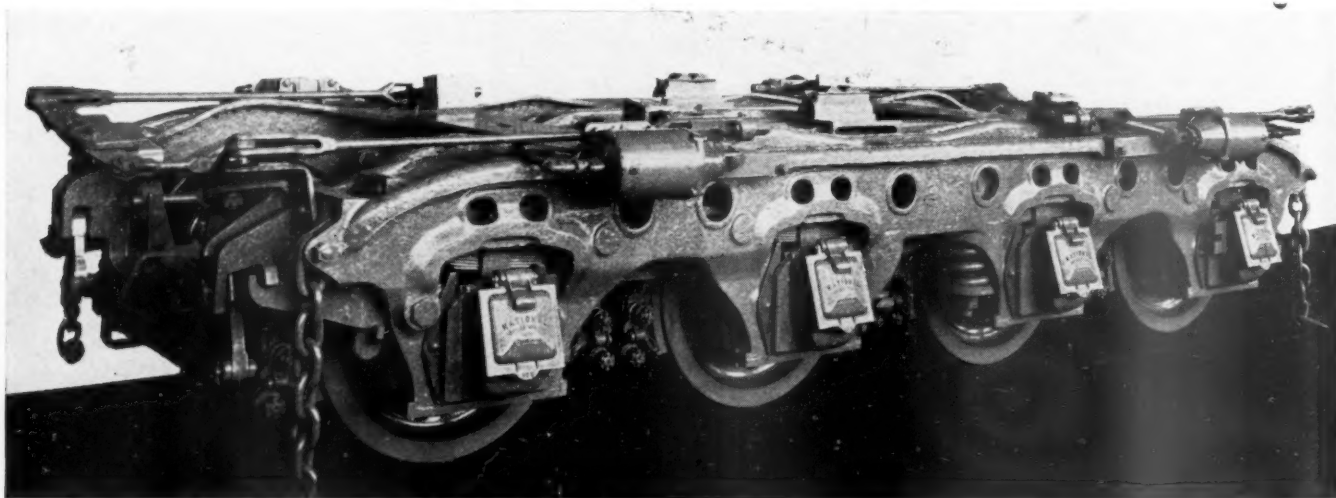
#### Welding and Staying

All of the seams inside the firebox are welded, including the seam in the combustion chamber. The sheets, inside and outside, are seal-welded to the mud ring for a distance of 12 in. each way from the corners. The syphons are welded into the firebox plates. The barrel course seams are welded for distances of from 11 in. to  $16\frac{1}{2}$  in. from the ends. The firedoor hole is welded.

The dome is a one-piece open-hearth-steel forging 36 in. in diameter. The fireboxes and combustion chambers are stayed with Flannery bolts. Flexible bolts with U-type sleeves are used in the back head, combustion chamber and throat sheet. Expansion stays with WR sleeves and caps are used across the front four rows of the combustion chamber and along the crown-sheet bend. The crown stays in the 13 central rows are the taper-end type.

The firedoor opening is 25 in. by  $25\frac{5}{8}$  in. and a Franklin No. 8 Butterfly door is used. The grates are the railroad company's standard Rosebud design and bituminous coal is fed by a Standard HT stoker. Water is fed to the boiler by one Nathan 10,000-gal. capacity injector and by a Worthington Type  $5\frac{1}{2}$  SA feedwater heater. A 58-element Elesco Type A superheater, American multiple throttle and Tangential steam dryer form part of the steam supply and control equipment. The feedwater heater is located ahead of the stack and both hot- and

(Continued on page 912)

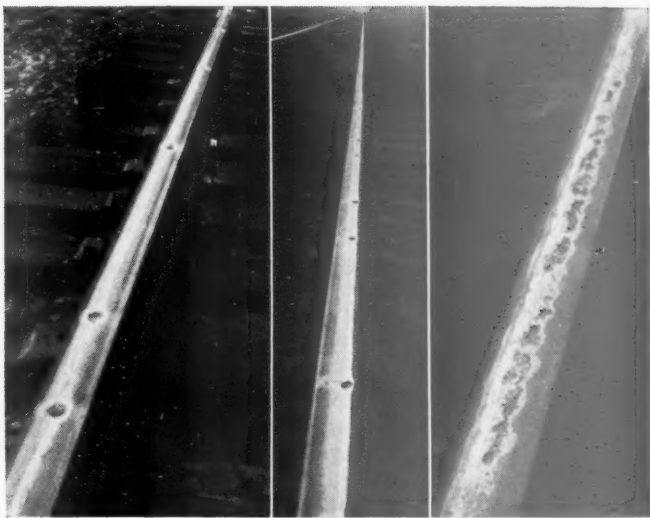


One of the Eight-Wheel Tender Trucks



# B. & O. Develops Facts on Causes of Driver Burns

Additional information on this troublesome rail problem is revealed by tests with Mikado locomotive



Showing Three Examples of Badly Driver-Burned Rails

FOR the purpose of developing information that would throw additional light on the conditions under which rails are “burned” by the slipping of locomotive drivers, the Baltimore & Ohio recently conducted a series of tests with a Mikado locomotive in which was measured the depth of burns caused by wheel slippage under various conditions. On the basis of the data thus made available, the railroad has been able to draw certain conclusions concerning those factors that influence the occurrence and depth of rail burns. Based partly on these conclusions, a set of rules for minimizing rail injury due to driver slippage has been formulated for the guidance of locomotive engineers.

### Cost of Driver-Burned Rails

On the B. & O., as on other railroads, driver-burned rails constitute a source of considerable additional maintenance expense because of the necessity for changing out many such rails owing to the fact that they affect riding conditions adversely and increase maintenance costs. On this road, it is estimated that the labor expense involved in changing out a damaged rail amounts to \$5.25. Moreover, the depreciation in the value of

in each case amounts to about \$52, assuming that the rails are damaged sufficiently to require replacement.

It was this high cost of driver-burned rails that prompted the railroad to undertake the tests in an effort to develop information that could be used in preventing such burns. The tests were conducted at the Riverside shops at Baltimore, Md., with a Type Q-4b locomotive having a tractive effort of 63,200 lb. and a factor of adhesion of 3.9. The weight on the drivers was 60,100 lb. for the No. 1 axle, 62,100 lb. for the No. 2 axle, 62,800 lb. for the No. 3 axle and 62,000 lb. for the No. 4 axle. Tests showed that the average hardness of the tire steel ranged from 255 to 286 on the Brinell scale. The circumference of the drivers was 16 ft. 25/8 in.

For conducting the test, a 100-ft. section of tangent track was chosen. In this track, which was in good line and surface, the rail was of 130-lb. R. E. section and was supported on canted tie plates. While the rail had been in main line service, it was in good condition and exhibited no flat spots or areas of excessive wear on the running surface. The average Brinell hardness of the rail was about the same as that of the locomotive tire steel, ranging from 262 to 277. An exception was provided by one rail which had a hardness of 495.

### Results of the Wheel Slippage Tests

Test No.	1	2	3	4	5	6
Rev. Dr.	...	17	5	6	7.5	6
Time Sec.	5	3	2	3	2	2
Cond. Rail	Dry	Dry	Dry	Dry	Dry	Wet
Direction	Pushing	Pushing	Pushing	Pulling	Pulling	Pulling
Wear in Rail at Wheel Locations						
1	L .035 R .047	L .035 R .025	L .025 R .022	L .024 R .017	L .028 R .024	L .020 R .023
2	.035 .044	.035 .032	.023 .020	.019 .021	.031 .030	.026 .029
3	.033 .030	.032 .029	.023 .017	.020 .020	.021 .022	.029 .029
4	.033 .023	.038 .033	.026 .015	.021 .019	.030 .028	.018 .027
Average	.035	.032	.021	.020	.027	.025

the rail due to its damaged condition is estimated to average \$12.10, making a total cost of \$17.35 for each rail that is changed out because of rail burns. Since at least three rails are damaged each time the slipping of locomotive drivers occurs, the total cost to the railroad

During the tests the boiler pressure was maintained at 220 lb. per sq. in. and full throttle was used, steam being admitted at full stroke. The test locomotive was used as both a pushing and a pulling unit and was anchored during the tests by three dead engines with air

brakes applied, air from the shop supply being used for this purpose. Following each test, the position of the test locomotive on the track was altered slightly.

Six different tests were conducted, five with the rail dry and one with the rail wet. Following each test, the depths of the burns were measured by means of a Brown & Sharpe depression gage. The results of the tests are given in the accompanying table. In a seventh test, during which an effort was made to slip the rails on wet sanded rail, it was found impossible either to slip the drivers or to move the three dead locomotives.

Observations made during these tests indicate that, if the engineman closes the throttle immediately following the first indications of slipping, there will be five or six revolutions of the drivers. Since the tests showed that even this minimum number of revolutions of the drivers results in rail burns of a relatively substantial depth, it is evident that any driver slippage whatever results in material damage to the rail. It is also evident from the table that when the number of revolutions is approximately the same, driver burns are of about the same depth, regardless of whether the rails are dry or wet.

In view of the foregoing test results and on the basis of previous experience, the B. & O. has called the attention of its enginemen to the fact that they can reduce the slipping of drivers by observing the following precautions:

Open sanders just before the locomotive comes to rest in making all stops, to insure that all drivers are on sand when the train is started.

Open sanders before opening the throttle.

As soon as the train is started, the throttle should be eased off and then gradually opened to the desired position as soon as it is felt that this can be done without the engine slipping.

After the train has been started and is in motion, and the engine starts to slip when the sand has been shut off, the engineman should close the throttle immediately and then open the sanders. A great amount of damage can result when a locomotive starts to slip badly and the engineman opens the sanders without first having closed the throttle.

Enginemen must also bear in mind that rail-washers must be used when the track has been sanded to avoid fouling switches and causing an unclean condition of the roadbed.

The information contained in this article was obtained in part from an article in the September issue of the Baltimore & Ohio Employee's magazine and in part from a report of the test compiled by the motive power department. The tests were conducted under the direct supervision of G. R. Galloway, superintendent of motive power of the Eastern lines of the B. & O.

## Passenger Locomotives for the Atlantic Coast Line

(Continued from page 910)

cold-water pumps are under the runboards on the left side.

Other boiler equipment consists of Okadee smokebox hinges, blow-off cocks and mufflers, and Consolidated 3½-in. safety valves.

Long passenger train runs necessitated large tenders on these locomotives. They have a water capacity of 24,000 gal. and a fuel capacity of 27 tons of coal. They are the first to be carried on eight-wheel trucks. The tanks are of the rectangular type built of Cor-Ten steel plates. The tender frames and the truck frames are cast steel and were furnished by the General Steel Castings Corporation. The loaded weight of the tender is 435,500 lb., an average of 27,200 lb. per wheel. The trucks have rigid frames and swing bolsters and are carried on

36-in. rolled-steel wheels, plain bearings and 6½-in. by 12-in. journals.

The tender trucks are equipped with Unit Cylinder clasp brakes with four independent cylinders on each truck. The braking ratio is 100 per cent at 50 lb. cylinder pressure.

The coupler at the rear end of the tender is a National Type E rotary passenger coupler with Miner A5XB draft gear and McConway & Torley yoke. Barco flexible steam-heat connectors are used at the rear of the tender.

## Budgetary Control of Maintenance Outlays

(Continued from page 907)

tically all railroads; while the plan in its entirety may prove to be "up the alley" of at least some railroads.

This article is not intended exclusively for railway accountants. Instead, it has been purposely written from a non-technical standpoint so that any intelligent railroader, regardless of his department, may readily understand and profit by the information which it contains. The reasons for presenting this problem and its proposed solution thus non-technically are two. The first is that an officer of another department can get a lot more help out of his accounting department than he is now getting if he knows a little more about how the accounting department functions—and this article will give him at least a beginning to that knowledge. The second is that the accounting department itself can never function at its maximum effectiveness until officers in other departments have a better understanding of accounting department operations and potentialities.

Most of our readers, therefore, will, we believe, read this article with interest and profit. Some may find in it much to criticize. If they do, they would confer a favor on both ourselves and the author by writing either to us or to him, setting forth wherein they disagree. Nothing could serve more effectively to advance the well-being of railway accounting than vigorous discussion of its problems—hence honest criticism will be welcomed. Furthermore, the author has in preparation a book on some of the more important questions facing railroad accountants today—this article, in fact, being a non-technical re-writing of a proposed chapter from the book. It goes, without saying, therefore, how helpful the comments of our readers will be to the author in perfecting the final draft of his manuscript. As he progresses with his work, he has promised to let us have non-technical summaries of other chapters in it. One such, which we hope may soon be available for publication, will deal with the Use of Performance Records and Statistics as an Aid to Promoting Operating Efficiency. Another will treat upon How to Use the Accounting Department to Reduce Loss and Damage Claims. There may be others later—the present article on budgetary control of maintenance expenditure is a promising beginning.

# Controlling Maintenance Outlays

How effective budgetary control of expenditures keeps the departments involved from living beyond the corporation's means

By E. H. Bunnell

Vice-President, A. A. R.

**E**FFECTIVE budgetary control of maintenance of roadway and structures and maintenance of equipment expenditures must contemplate a workable set-up which provides vital information in time for managerial action to keep the departments involved from living beyond the corporation's means. It is believed that the system described in broad outline herein does that—under it as the month progresses the management has practically daily actual figures which can be utilized for managerial control and varied, if necessary, to provide for the many contingencies that constantly arise in the operation of a railroad.

Generally speaking the system is bottomed upon the monthly income account forecast from which the budget allowances for maintenance work are determined. These allowances are allocated in detail right down to the track and shop, from which come back regular reports to check against the allotments and to form the basis for "on-time" managerial action and adjustments.

## Income Account Forecast

The forecast of the monthly income account is made about the 20th of the preceding month, and is prepared in sufficient detail to give a complete picture of what the next month's income account may be expected to show. Among other data the current carloading reports are studied, along with recent monthly averages and the record of average earnings per car, in order to arrive at the freight revenue estimate for the month under prophecy. The monthly carloading estimate is corrected to eliminate non-revenue freight before being multiplied by the average earnings per car—the calculation which

(after adjustments for seasonal and current cyclical trends) gives the estimated freight revenue for the month. Estimates of passenger-train revenue and other revenue are made for each of the separate accounts involved on the basis of seasonal trends and the general trend as disclosed by the latest actual figures.

To estimate transportation expenses the gross revenue estimate is applied to the current transportation ratio and adjustments are made to compensate for unusual traffic increases or declines. This is just an "informed guess" but it produces remarkably close figures. Being based on revenues, any over- or under-estimates of revenues are usually accompanied by corresponding under- and over-estimates of expenses and offset in net revenue. The expense estimate for miscellaneous operations (mainly dining-car expenses) is a percentage of passenger revenue, based on experience; while traffic and general expenses, being fairly constant, are estimated on the basis of latest actual experience with allowances for unusual items. Before including the estimate of maintenance expenses, other estimates are included on the best available bases for tax accruals, hire of equipment, interest and all other accounts.

## Fixing Total Maintenance Allowances

The income account forecast is, of course, made before the amount of the coming month's budget can be known; but in order to have a complete picture tentative figures for maintenance are inserted. These are based on the previous month's budget, adjusted to compensate for any difference in the number of working days. After the chief accounting officer has prepared the estimated income account in this fashion, it is submitted to the chief executive officer, who, after consultation with the chief operating officer, fixes the amount to be spent for maintenance during the next month. These executives are familiar with the needs of the railroad, since the physical condition of the roadway and structures and equipment is constantly before them as a result of their own periodic inspections and the reports they receive from subordinate officers. In fixing the roadway and equipment allowances they first determine the amounts necessary to maintain the property in safe condition for operation and to protect the volume of traffic and then round out the allotments with such additional money as may be available for major renewal, repair or improvement work. It sometimes happens that unforeseen contingencies arise during the month, and, under the daily plan, it is usually possible to rearrange the apportionments between operating divisions and still keep within the budget allowance. After the budget allowances are approved the income account forecast is corrected accordingly, and authority for expenditure of the amounts involved is transmitted by the chief operating officer to the general manager for maintenance of way and struc-

**AUTHOR'S NOTE**—The author believes that budgetary control of maintenance expenditures is a subject which any railroad man, regardless of his department, will find interesting—either because of its direct effect upon his own department or because of its value to the railroad as a whole. The author has attempted, therefore, to present a subject of immediate technical interest to accounting officers in a form more palatable to general consumption. The accounting officer who seeks detailed plans for specific application may obtain them upon request from the author.

The article presented herewith, as is explained in an editorial elsewhere in this issue, is a summary in non-technical language of a chapter from a general work on present-day problems of railway accounting which the author has in preparation. It is planned to publish similar summaries of other chapters from the work from time to time in the *Railway Age*—and comments and criticisms will be greatly welcomed, and of the greatest assistance to the author in preparing the final draft of his detailed manuscript.

There is nothing "official" about either this article nor the larger work to follow. That is to say, the author has written purely in his private capacity as a student of railway accounting and not as an officer of the A. A. R., nor in behalf of the Frisco, which he formerly served as Chief Accounting Officer, and from which experience the subject matter of this work has been derived. Despite the "non-official" nature of this utterance, however, the author has had the benefit of the advice and criticism of a great many railway accounting officers and others (especially John E. Slater and Joseph R. Warner), which assistance is most gratefully acknowledged.

In thus seeking an audience wider than usual to attend to a subject lying primarily in the Accounting Department, the author hopes that he may accomplish two things, namely (1) that the railway officer outside the Accounting Department may have a better understanding of how the accountants can assist him in doing his own job better, and (2) that a better understanding by other railroaders of Accounting Department functions may promote their co-operation with it toward the securing of a more harmonious railroad organization as a whole.



tures, and to the superintendent of motive power for maintenance of equipment.

The machinery for apportioning the maintenance of way and structures allowance provides that on about the 20th of the month the superintendent of each division shall forward to the general manager a statement listing the division's requirements for the following month. When the general manager gets his maintenance of way and structures allowance from the chief operating officer he in turn apportions to the superintendent of each division what he considers to be a proper amount—after a study of the superintendent's recommendations in the light of his own knowledge of the property and of its requirements for safe operation. The general manager then writes a letter to each division superintendent, informing him as to the amount of his allowance for regular work and enumerating any major renewals or repairs the superintendent is authorized to do. Allowances are also made to the signal engineer, the superintendent of telegraph and the chief engineer's steel bridge gang.

Before allowances for the month are given out, however, there are certain amounts for "arbitraries" which must be deducted by the general manager from his total before its above-mentioned apportionment to operating divisions. Arbitraries represent recurring items and overhead, such as: Superintendence; depreciation; injuries to persons; insurance; stationery and printing; joint facilities net; property retired and addition and betterment adjustments; chief engineer's contract vouchers; cross tie equalization program; rail renewal equalization; and "miscellaneous." There is a well-worked-out procedure for arriving at the amount for each of these arbitraries, which are determined by the division and stores accountant (under the jurisdiction of the accounting department, located for convenience at the operating department headquarters).

### Apportioning the Maintenance of Way Allowance

When the division superintendent receives his allowance for maintenance of way and structures, he in turn apportions it to the roadmasters and the general foreman of the bridge and building and water service forces. The roadmasters and the general foreman then divide their portions among their track sections and bridge and building and water service gangs. On the basis of their experience and knowledge of the work that must be taken care of during the month, roadmasters and general foremen regulate their forces. In arriving at the amounts they may spend for labor, consideration is given to the cost of materials to be used, work train expenses and any contract work which must be paid for out of the allowances.

With the maintenance of way and structures allotments thus distributed down to the smallest unit, the next step is to follow through with a description of how the actual expenditures are controlled and kept within the established allowances. The basic record of the section, extra gang and bridge and building and water service gang is "The Foreman's Pocket Time Distribution and Material Book" in which the foreman each day records in all the desired detail the total hours worked by his gang, and the material used received and shipped as well as that released from tracks retired. At the end of the day each section and extra gang foreman transfers from the pocket time book to the "Track Foreman's Daily Report of Labor Distribution" the details of the time worked by his force, exclusive of the foreman's regular time. The original is mailed to the auditor of disbursements and a carbon copy to the roadmaster. The bridge and building

and water service foremen make a similar daily report; however this shows both labor and material entries, and the original is sent to the general storekeeper while a carbon copy goes to the auditor of disbursements.

### Reports on Performance

The auditor of disbursements uses the labor-distribution data on these reports to prepare maintenance of way and structures labor distribution by primary accounts as a basis for information covering labor charges applicable to superintendents' allowances periodically furnished to the division and stores accountant. The auditor of disbursements furnishes the labor charges in this connection summarized by track sections (or in the case of the bridge and building and water service department by operating divisions) as of the 14th of the month and daily thereafter.

All miscellaneous materials and supplies are carried in stores stock notwithstanding the fact that certain classes of materials distributed on line are charged out when used and reported on foremen's daily reports of material distribution. As stated above, the bridge and building and water service foremen's entries in this connection are on the same form with the labor items; while the section and extra-gang foremen make their daily material reports on forms separate from those carrying the labor distribution data. Small materials such as track bolts, spikes, fence staples, motor car parts, supplies, etc., are charged out when shipped from requisitions given storekeepers. Rails and ties are each carried in separate stock accounts and charged out when used, although the charges for material used in connection with the rail-renewal and cross-tie equalization programs are not applied against superintendents' allowances; such equalized charges are provided for in the "arbitraries" as noted above.

At the close of each working day the foremen transfer from their pocket time and material distribution books to the daily material reports, the quantities, kinds and description of all material used and released in work performed on that date. These material reports, specific as to location and nature of the work involved, are mailed to the general storekeeper, while carbon copies of those prepared by section and extra-gang foremen go to the interested roadmasters. All material requisitions filled at local stores are sent to the general storekeeper where they, along with the requisitions filled at the general store and the foremen's daily material reports, are priced and sent to the division and stores accountant for his statement of estimated material charges applicable to superintendents' allowances.

Meanwhile other maintenance of way and structures expenditures are being collected and summarized, including the cost of work-train service from trainmasters' reports; the roadmasters' reports of ballast unloaded; and the vouchers covering contract work. As of the 14th of each month, the total material charges to maintenance of way and structures accounts from section and extra-gang foremen's daily material reports are drawn off, by gangs, on a separate report, one for each track division, showing the amount of the material charges applicable to superintendent's allowance for the month to date. A separate report of this kind for each operating division is prepared showing material charges, including bridge ties, from the bridge and building and water service foremen's daily reports. To these reports separate items are added to cover the cost of material chargeable to maintenance of way and structures accounts from material requisitions from each track division, the cost of ballast unloaded, the cost of switch ties, and miscellaneous ma-

terial requisitioned and used by the mechanical department for repairs to roadway property. Any betterment credits in connection with bridge renewals or relay rail jobs, *not included in the rail equalization program*, are also included, as is the number and kind of cross ties inserted and the net charge for rail used in relay work not included in the rail program. The latter is applicable to superintendents' allowances; however as all cross ties are inserted under a program, their cost is not applicable—the number inserted is shown for the superintendent's and roadmaster's information as to progress on the tie program.

#### Daily Check After the 14th

As of the 14th of each month all charges for each track division and for the bridge and building and water service department are summarized by operating divisions. Such charges are sub-divided between labor, material, work-train service and contract vouchers, and the totals show the charges to date compared with the proportion of monthly allowances available; also, the over-run or under-run and the percentage of the total month elapsed. This summary is sent to each division superintendent and division engineer, one copy being retained by the division and stores accountant and a fourth divided to send separate portions to each roadmaster and general foreman of bridge and building and water service. There is also attached to the superintendent's copy a list of extra gangs, section and bridge and building and water service gangs for which daily material reports have not been received from foremen in order that the superintendent may reckon with the effect of any missing reports as of the date the summary was published, which is the third day following the last which it covers. After the 14th this series of reports is issued daily until the last day of the month, with a final report around the fifth of the next month.

As of the 14th, 21st and last day of the month the division and stores accountant prepares a statement for the chief operating officer, general manager, auditor of disbursements and the superintendents, summarizing the estimated maintenance of way and structures expenditures. This statement shows separately by operating divisions the total for labor, material, work-train service and contract vouchers; a time-elapsed proportion of the arbitraries; and a comparison of the total estimated charges with the budget allowance.

The chief engineer's bridge gang and the signal and telegraph forces report direct to the general manager who determines their allowances. Charges to maintenance of way and structures by those gangs are not accumulated and furnished periodically throughout the month; but in preparing his above-mentioned summaries as of the 14th, 21st and last day of the month, the division and stores accountant sets up an amount representing the time-elapsed proportion of the allowances involved. The actual control of such allowances rests entirely with the chief engineer, signal engineer and superintendent of telegraph.

#### Apportioning Maintenance of Equipment Allowances

The work of apportioning the maintenance of equipment expenditures gets under way when the chief operating officer gives the superintendent of motive power an allowance, based on the latter's recommendations both with respect to his department's current needs and any special program which it may be desirable to undertake. This maintenance of equipment work is outlined on the basis of expenditures necessary to operate roundhouses

and rip tracks on a regular and efficient schedule; and, if the allowance permits, a program of major locomotive and car repairs is carried out.

An endeavor is also made to continue the routine car-repair program which averages approximately the same amount each month.

As in the case of maintenance of way and structures allotments, so too the maintenance of equipment allowance is adjusted to take care of "arbitraries" before being distributed among the master mechanics and shop superintendents. The arbitraries (similar to those in the maintenance of way and structures set-up) are estimated by the division and stores accountant and furnished to the superintendent of motive power. They do not, however, include certain other charges and credits such as car-repair bills and vouchers and scrap material reclaimed, the net of which (ordinarily a credit balance) is furnished to the superintendent of motive power by the division and stores accountant. In giving out his budget allowance to the shop superintendent and division master mechanics the superintendent of motive power ordinarily holds the above-mentioned estimated net credit from miscellaneous sources in reserve until the latter part of the month for use in taking care of unexpected additional labor or material requirements, or to offset amounts he gives master mechanics specific authority to exceed their original allowances. As the month progresses the division and stores accountant revises his original estimate of this net credit, and gives the superintendent of motive power a figure as close as possible to what the actual will be.

When giving the shop superintendent and master mechanics their respective allowances the superintendent of motive power separates such allowances for locomotive, freight car and passenger-train car repairs, and also specifies any special repair programs or work he desires carried out. When the master mechanic receives his allowance he in turn divides it between his shops and other mechanical-department points. The foreman at each of the latter is informed of the amount of his allowance for the month. Allowances cover only repairs to system cars, but the credit from bills for repairs to foreign cars is not allocated to master mechanics; it is included in the above-mentioned net credit to the superintendent of motive power from miscellaneous items.

#### Checking Equipment-Maintenance Expenditures

From the foregoing it will be seen that here, as in the maintenance of way and structures department, the budget allowance is subdivided down to the smallest unit; and supervisory forces throughout are required to exercise control to keep their expenditures within the prescribed limit. The next step is to follow the procedure whereby the mechanical department expenditures are collected and verified and matched against the allowance.

Charges for labor are accumulated from distribution cards which are prepared daily by each individual shop employee and forwarded to the central timekeeping department in the general office. The totals from these cards are accumulated on condensing sheets showing the amount chargeable to each primary account separately by shop points. Master mechanics and shop superintendents are furnished daily statements showing charges to maintenance of equipment accounts by points. Totals, including estimated proportion of shop and power plant expenses for periods ending the 15th, 23rd and last day of the month are furnished by the auditor of disbursements to the division and stores accountant—sub-divided by operating divisions and by equipment classes, i.e.,

(Continued on page 920)



# Union Pacific's Steam-Electric Locomotive

**N**EARLY two years have been spent by General Electric and Union Pacific engineers in designing and building a steam turbine-electric locomotive. Rated at 5,000 hp., it is designed to haul a 12-car train of Pullman and standard passenger cars between Chicago and the Pacific Coast, handling this train over 2.2 per cent grades without a helper. Climatic conditions encountered enroute range at different seasons from 40 deg. below zero Fahrenheit to 115 deg. above. Some of the mountain passes through which the locomotive will operate are at altitudes exceeding 8,000 ft. above sea level.

While the steam-electric locomotive is a radical departure from the conventional form of steam motive power, the various pieces of apparatus which go to make up the locomotive have, for the most part, been thoroughly tried out and have demonstrated their reliability in actual service. The assembly and arrangement of the equipment follow, in general, the practice in modern high-efficiency power plant work. Because of the necessity for light weight and the limited space requirements, some use has been made of experience gained in the installation of equipment on shipboard.

The operating advantages of the steam-electric locomotive include:

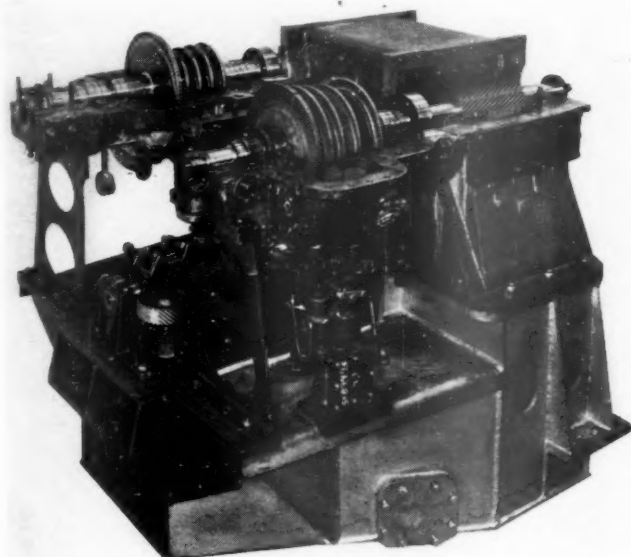
- (1) Thermal efficiency from fuel to the driving wheels more than double that of the conventional steam locomotive.
- (2) Electric braking resulting in savings in brake shoes and tires, not only for the locomotive, but for the entire train.
- (3) High rates of acceleration and braking due to high adhesive weight.
- (4) Capacity for 500- to 700-mile performance without stops for fuel or water.
- (5) Elimination of corrosion and boiler scale due to use of distilled water in a closed system.
- (6) Elimination of unbalanced reciprocating parts.

The locomotive consists of two identical units capable

of either multiple or independent operation. Each unit consists of a 2-C-C-2 running gear surmounted by a single-ended streamlined cab.

The running gear of each unit consists of two three-axle driving trucks and two two-axle guiding trucks. The truck frames are integral steel castings. All wheels are of the solid type and all journals are carried in anti-friction bearings. The cab structure is mounted on center plates, and the platform takes the buffing and pulling stresses. A flexible metal sleeve with sliding connection supplies ventilating air from centrifugal blowers located in the cab to each traction motor. The swivel truck arrangement provides room between the driving trucks for a well-type construction containing the steam boiler in the central part of the cab.

To secure smooth running at high speeds, restraint



Turbines and Turbine Gear—Height of Unit Shown is About 6 Ft.

One of the Traction Motors — with the Armature Removed



Turbine Gear for 2500-Hp. Unit





One of the 2500-Hp. Units with a Baggage Car on the G. E. Test Track at Erie, Pa.



Operator's Position in the Cab of the Locomotive

devices are used between the main trucks and cab and between guiding trucks and main trucks. Side-bearing pads on each main truck give the cab additional support.

The cab is designed to secure the lightest possible construction consistent with the requirements of strength and rigidity. The frame is built up with high strength steel tubular members, and aluminum cab sheets are employed except for the streamlined nose, which is of steel welded throughout. In the fabrication of the cab, welding is largely used, except for the aluminum sheets, which are riveted in place.

The locomotive is designed for single-end operation, with streamlining to minimize wind resistance. The front coupler is normally retracted and covered by a removable panel which conforms to the streamlined contour of the pilot structure.

Clasp brakes are used on both driving and idle wheels with four shoes per wheel on the drivers. The braking on these drivers is supplied from two cylinders per axle. Provision is also made for dynamic electric braking of sufficient capacity for holding trains on grades and for assistance in making service stops. A new high-speed air-brake equipment suitable for use with both new and conventional trains has been included.

To facilitate maintenance, provision is made for replacing any unit of the power plant or electrical equipment, including the main boiler, in a few hours. Traction motors may be removed in a drop-pit.

Other equipment can be removed by a crane through the roof.

Each cab encloses the following principal elements:

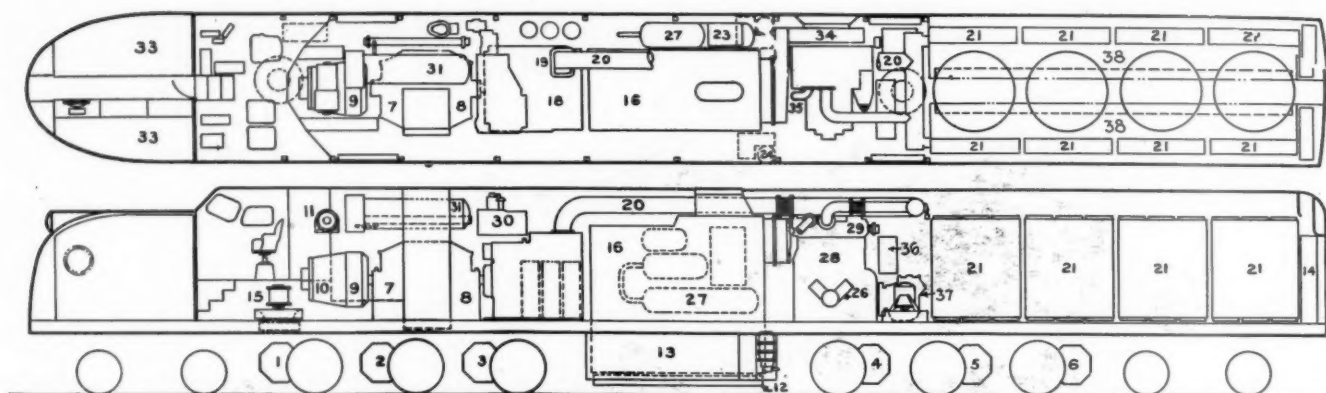


Diagram Showing Location of Apparatus in the Locomotive

a complete 2500 hp. geared turbine-driven generator set; a high-pressure steam boiler; a compactly built turbine-driven auxiliary set with full automatic control; and a finned tube air-cooled condenser with turbine-driven fans for cooling.

The locomotive is designed for operation on lines where full electrification is not justified, but where superior passenger schedules are demanded. Each cab of this locomotive has the following ratings, weights and dimensions:

Wheel arrangement per cab	2-C-C-2
Total weight with full tanks of fuel and water	530,000 lb.
Weight on driving wheels	342,000 lb.
Weight per driving axle	57,000 lb.
Fuel oil capacity	3,000 gal.
Water capacity	4,000 gal.
Total length over couplers	90 ft. 10 in.
Overall width	10 ft. 8 3/4 in.
Maximum height	15 ft. 0 3/4 in.
Maximum rigid wheel base	13 ft. 4 in.
Diameter of driving wheels	44 in.
Diameter of guiding wheels	36 in.
Rating of main turbines	2,500 hp.
Number and type of traction motors—each unit	6-GE-725
Gear ratio 65/31	2.097
Maximum operating speed	125 m.p.h.

In order to obtain the capacity, flexibility and efficiency essential to the best train operating characteristics, the power equipment has been designed to respond promptly to sudden demands for power. The rate of firing therefore increases and decreases automatically with the load demand.

### Steam Boiler

The steam boiler\* and automatic control equipment were designed and built by Babcock & Wilcox and the Bailey Meter Company, in collaboration with the General Electric Company. The boiler is a water-tube forced-circulation type, compactly built, incorporating a furnace, super-heater, economizer, air pre-heater, and burners for Bunker "C" fuel oil. It generates steam at 1,500 lb. pressure, superheated to 920 deg. F. Special provisions are made to withstand shock and vibration resulting from the movement of the vehicle over the rails.

By replenishing water losses in the closed system with steam from the evaporator which supplies train heat, practically all scaling and corrosion of the tubes are eliminated. The construction of the boiler unit and its three-point supports furthermore avoids distortion of the tubes due to normal movement of the locomotive. The economizer is an integral part of the boiler and utilizes waste heat for increasing the temperature of the boiler feed water. Several boilers of this type have been built

\* A description of this type of boiler was presented before the 1936 annual meeting of the American Society of Mechanical Engineers in a paper entitled "Steamotive," by E. G. Bailey, A. R. Smith and P. S. Dickey.

- |                             |                               |
|-----------------------------|-------------------------------|
| 1-6 Traction Motors         | 23 High Level Condensate Tank |
| 7-8 Main Generators         | 26 1500-lb. Feed Water Pump   |
| 9 Alternators               | 27 Feed Water Heater          |
| 10 Exciter                  | 28 Boiler Aux. Set Turbine    |
| 11 Battery Charging Set     | 29 Condenser Fan Turbine      |
| 12 Braking Resistor         | 30 Compressor                 |
| 13 Main Control Contactors  | 31 Train Heating Evaporator   |
| 14 Battery                  | 33 Raw Water Tank             |
| 15 Traction Motor Blower    | 34 Boiler Draft Fan           |
| 16 Boiler                   | 35 Braking Resistor Separator |
| 18 High Press. Main Turbine | 36 Boiler Control Panel       |
| 19 Low Press. Main Turbine  | 37 Traction Motor Blowers     |
| 20 Exhaust Header           | 38 Fuel Oil Tanks             |
| 21 Air-cooled Condensers    |                               |

by Babcock & Wilcox and are successfully handling commercial service in stationary plants.

For starting the locomotive when cold, a small vertical fire-tube boiler with a capacity of 100 lb. of steam per hour is provided, using propane gas for fuel. This boiler supplies steam for heating the fuel oil and atomizing the oil at the burners when starting the main boiler. The auxiliary boiler is designed for a pressure of 75 lb. per square inch, and is used only for starting when an outside supply of steam is not available. Where steam can be secured at the enginehouse or from an external source the main boiler can be started without the use of this auxiliary.

### Main Turbine Set

The main turbine generator set consists of the following elements:

- (1) High- and low-pressure turbines.
- (2) A two-armature direct-current generator driven through a gear reduction approximating 10 to 1 from these turbines. This generator is self-ventilated from a fan located between the armature, the air being drawn in through the commutator risers and discharged at the center through the roof of the locomotive. In cold weather this warm air can be utilized for cab heating.
- (3) A 220-volt three-phase alternating-current generator connected to the main generator shaft through a flexible disk coupling. This alternator furnishes power for train air conditioning, traction-motor blowers, and other accessories.
- (4) A variable-voltage exciter, the armature of which is mounted on the same shaft as the alternator. This machine supplies excitation for the main generator during motoring, and for the traction motors during electric braking.

### Auxiliary Set

The auxiliary set is a variable-speed unit driven by a turbine which takes steam extracted from the main turbine. Its speed therefore varies somewhat with the traction load on the main turbine. This speed is further controlled automatically in accordance with the steam

demand from the main boiler. Its function is to supply and regulate the combustion air and fuel oil delivered to the furnace, and also to supply feed water in proportion to the demand for steam. The complete set consists of the following parts: a starting motor, an auxiliary turbine, combustion-air fan, boiler feed pump and fuel-oil pump.

A rotary-type pump is independently driven by a direct-connected 125-volt direct-current motor. This pump is used for circulating lubricating oil to the reduction gearing, gear-shaft bearings, turbine bearings and feed-water-pump bearings. The circulating oil is cooled by radiators located with the condenser units.

The condenser-fan turbine is also independent of the auxiliary-set drive, but is mounted on the same support. This turbine operates at a variable speed which is dependent on the condensation requirements but has a maximum speed of about 12,000 r.p.m.

### Condenser

The condenser is mounted on each side of the rear end of the locomotive cab, and consists of finned-type vertical tubes. Headers at the top receive the exhaust steam from which the condensate is drained by gravity to a sump-tank under the locomotive cab. Ventilation for the condenser is provided by turbine-driven propeller-type fans drawing air through the sides of the locomotive and discharging it through openings in the roof.

As a part of the condenser equipment there is a steam-operated vacuum ejector for extracting small quantities of air which may leak into the closed system. This ejector normally will function under partial vacuum conditions down to 5 lb. absolute.

In normal operation the condensed water in the tank located under the locomotive cab is maintained at a constant level by a float switch. Provision is also made for the addition of make-up water as required. Water from this tank is pumped into another tank located high in the cab, using a centrifugal type pump. In normal operation the upper tank will be kept full, the excess water overflowing and returning to the lower tank. Another pump transfers the water from the upper tank to the suction side of the feed water pump. From this point the water passes through the feed water heater, the economizer, thence to the boiler tubes and then to a separator drum, from which excess water is returned to the sump. The steam passes through the superheater and turbines and back to the condensers.

### Low Pressure Steam

A continuous supply of low pressure steam is required for train heating, the operation of the air compressor turbine, and for heating fuel oil. For this purpose a heat exchanger or evaporator is used, consisting of a coil immersed in raw water. This coil takes steam either direct from the main boiler or by extraction from the main turbine. In either case the pressure is reduced before entering the coil.

Water is supplied to the evaporator by three reciprocating pumps driven by direct-current motors.

### Turbine Compressor Set

A 150-cu ft. double-stage air compressor designed to supply 125- to 135-lb. pressure is driven by a steam turbine operating at 200 lb. pressure and driving through a reduction gear. This compressor set is regulated by a governor which operates a shut-off valve in the turbine supply, starting and stopping the set as required.

A 15-cu. ft. compressor supplying air at 90 lb. pressure and operated by a 125-volt direct-current motor supplies air for operating the Bailey regulating devices and control equipment during starting when no steam is available for operating the turbine compressor set.

### Electrical Circuits

This type of locomotive is essentially an electric locomotive carrying its own power plant. Since the main generator, however, is used solely for furnishing power to the traction motors, advantage is taken of the opportunity to regulate the train speed by varying the generator voltage, thus avoiding rheostatic losses. Acceleration of the train, therefore, is effected by controlling the current in the exciter field by means of the master controller, thus regulating the field current in the main generators. The main generator current is thus supplied to the axle-hung, geared traction motors at varying voltages, depending upon the demand for power and speed.

Control current is supplied by a 125-volt motor-generator set with a battery floating on the line. Both acceleration and electric braking are regulated indirectly through the master controller.

This master controller includes an accelerating handle, an electric braking handle and a reverse handle. The reverse handle is also used as a selector handle for motor combinations in each direction. Provision is made for operating the motors in series and two series-parallel combinations. Both the accelerating and braking handles normally hold a fixed kilowatt load on each controller step, except during the first few motoring steps, where approximately constant tractive effort increments are obtained.

### Auxiliary Circuits

The primary power for the auxiliaries is supplied by the alternating-current generator. In addition to the operation of the two traction motor blowers this unit also furnishes power for the motor-generator sets, supplying 125 and 64 volts direct current. Lighting circuits and headlights also receive power from this alternating-current source. Plug receptacles on the exciter of the locomotive at both sides permit obtaining alternating-current power from an outside supply. The 64-volt motor-generator set supplies power for the standard train circuits.

### Automatic Control Features

The power plant is entirely automatic in operation and there are no power plant pressure or temperature gages in the operating cab. These devices are located on a control board situated in the apparatus cab. In the event of the operation of any of the protective devices, a warning gong rings in the apparatus cab and an indicating lamp shows at the engineer's position.

Automatic train control and cab signal equipment of the continuous type with suitable inductors for operation over Union Pacific lines are installed on both units.

The mechanical and electrical parts of this locomotive were manufactured in the Erie plant of the General Electric Company, the boiler was supplied by the Babcock plant of the Babcock & Wilcox Company, and the boiler control devices by the Bailey Meter Company of Cleveland. The locomotive is now undergoing commercial tests and upon the completion of these runs will be placed in revenue service by the Union Pacific.



## Deferred-Maintenance Data Sought by I. C. C.

WASHINGTON, D. C.

**A**UTHORITATIVE estimates of railroad financial requirements on account of deferred maintenance and needed improvements are being sought by the Interstate Commerce Commission in a questionnaire sent to Class I roads on December 12 with a request for replies by January 15, 1939. The circular which asks six questions "is not intended to cover financial needs to meet maturing obligations incurred in the past—it is intended to cover the bringing of the railway property up to a satisfactory condition for safe, adequate, and modernized transportation."

The letter of transmittal, signed by I. C. C. Secretary W. P. Bartel, states that because of the "frequent reference to alleged sums which the railways should have to make up deferred maintenance and to finance improvements," there is need "for more exact and authoritative information on this point than is now available." The commission recognizes that "no definite answer is possible unless a particular volume of traffic is specified;" and understands that "any figure given must be in the nature of an estimate." Mr. Bartel adds, however, that "obviously no one can make such an estimate as well as officers of each company;" and the commission "desires that the results of such estimates should be compiled on a uniform basis." The replies are to be submitted to the Bureau of Statistics.

### Estimated Rehabilitation Cost

The first question asks: "How much would it cost to put the respondent's railway in what it considers a normal condition to handle a volume of traffic in 1939 equal to that actually experienced for the calendar year 1937, that is, to make good deferred maintenance which has accrued to December 31, 1938, under the following heads?" The latter are: Rail renewals; tie renewals; other roadway and track maintenance, including fences, bridges and elevated structures; stations and office buildings, and station facilities; shop buildings, enginehouses and appurtenances; shop machinery and tools; all other maintenance of way and structures; locomotives and cars—repair of existing equipment, additional equipment; all other repairs or purchase of equipment.

The foregoing are set up in tabular form with five columns for the extension of figures relating to each item. These columns call for a break-down of each item into expenses for material or equipment at prices current at the time of this reply; charges on respondent's payroll at wage rates current at the time of this reply; and other expenditures. Then comes the total of these three, while the final column calls for the amount of that total which would be charged to investment.

### Other Questions

The remaining five questions are set forth in the circular as follows:

2. Is it imperative that the entire amount shown in answer to Question 1 be available at once? If not, how much thereof should be spent annually in the next three years?

3. By how much would the total shown in answer to Question 1 have to be increased if a volume of traffic 10 per cent greater than that of 1937 is assumed for 1939?

4. How much should be expended annually during the three years 1939-1941 for additions, betterments, and extensions over

and above the total shown for deferred maintenance in answer to Question 1 to enable respondent to handle more cheaply or expeditiously a volume of traffic equal to that actually handled in 1937?

(Note:—It is understood that adequate maintenance will permit of some modernization chargeable to operating expenses. The answers to Questions 4 and 5 should be confined to sums needed in addition to normal maintenance.)

5. How much should the total given in answer to Question 4 be increased if a traffic 10 per cent greater than that of 1937 is assumed?

6. Please give outstanding examples of how the increased capital expenditures referred to in answers to Questions 4 and 5 would help to reduce the cost of rendering transportation service in excess of the added interest charge and amortization of the new capital.

## Controlling Maintenance Outlays

(Continued from page 915)

locomotives, freight and passenger cars. This labor-cost information is furnished to the shop superintendent, master mechanics and the division and stores accountant as of the 15th, 23rd and end of each month.

Material required by the mechanical department is drawn from store stock on requisitions and all such material is charged out as issued. At the close of each day's business requisitions received that day are mailed by the storekeepers at local points to the general storekeeper who prices the material and totals each requisition. Requisitions from each point are kept intact by the general storekeeper, who prepares for each day's business a summary slip showing, by Association of American Railroads material classes, the total credit to store stock for material issues. Each group of requisitions, together with the summary slip, is forwarded to the division and stores accountant, who prepares material distributions and issues reports of mechanical department expenditures applicable to the maintenance of equipment allowance. The totals of each group of requisitions for each account are accumulated by comptometer operators and posted to material distribution condensing sheets. The sheet that covers maintenance of equipment repair accounts is printed in duplicate, the duplicate being a sheet that is perforated so that the total material charges for the day and the cumulative total for the month to date may be torn off and mailed to the shop superintendent and master mechanics. Material charges for the first eight days of the month are accumulated into one total and the first tear-off sheet sent out to cover the eight-day period. Thereafter this process is repeated daily, the slips being mailed to the shop superintendent and master mechanics on the third day following the date they cover.

As of the 15th, 23rd and end of each month the division and stores accountant informs the shop superintendent and each master mechanic of the total material charged against their respective allowances. Supplementing these periodical statements are forms originated by the general storekeeper and sent daily during the last half of each month to the shop superintendent and master mechanics, showing the list of requisitions held in abeyance for invoice prices, articles priced at estimated cost and price adjustments. Also, as of the 15th, 23rd and end of each month the division and stores accountant furnishes the chief operating officer, the superintendent of motive power and the auditor of disbursements a summary statement of the estimated charges to maintenance of equipment, compared with the proportion of the allowance available for the time

elapsed. This summary gives the management a flash as to how current expenses are running as compared with the budget allowance. After the month's records are closed the auditor of disbursements prepares a summary showing, by sources, the actual charges to primary maintenance of equipment accounts, and in total a comparison with the budget allowance for the month.

This latter and above-mentioned final statements in the maintenance of way set-up furnish in retrospect a picture of the estimates, the exactness with which the goal was attained and any appropriate explanation required. Management is thus in a position to correct deficiencies in judgment, improper handling or scheduling of work; and at the same time it is able to find the source of any trouble.

## Pennsylvania Greyhound Shortens Schedules

**T**HE recent grant of more than \$60,000,000 by the Public Works Administration and the Reconstruction Finance Corporation to the Pennsylvania Turnpike Commission for the construction of a super-highway between Pittsburgh, Pa., and Harrisburg, will result in a material shortening in the Chicago-New York schedules of the Pennsylvania Greyhound Lines. The new highway will follow the right of way of the old South Penn railroad, on which William H. Vanderbilt spent ten million dollars 50 years ago in a vain endeavor to build a railroad into the Pittsburgh district from the east. The new road will eliminate much of the grades and curvature of the present highways across the Allegheny and Blue Ridge mountains.

Despite the mountain operating conditions at present, the Pennsylvania Greyhound has been markedly successful in increasing the speed of its through runs on the existing highways, since the railroad acquired a large interest in this portion of the nation-wide bus system. At that time, all buses, including the Chicago-New York through runs, stopped nearly everywhere. While local runs still make highway stops and provide for short haul service, the Pennsylvania Greyhound has also built up a system of fast express runs through the mountains

over both the William Penn and the Lincoln highways. The former passes through Altoona, Tyrone, State College and Lewistown enroute from Pittsburgh and points west to New York, and the latter via Bedford, Gettysburg, Lancaster and Philadelphia.

### Fast Schedules Maintained

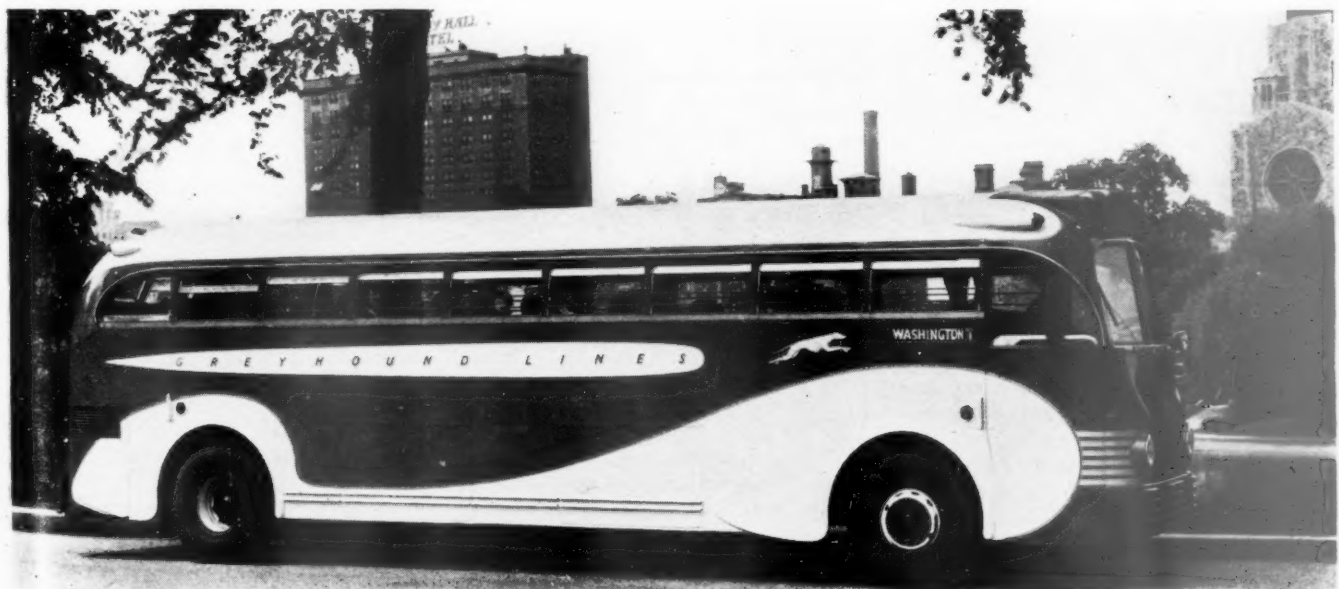
The fastest run operated via the Harrisburg route is the extra-fare "Dearborn Limited." This bus makes the run between New York and Pittsburgh in 12 hr. 10 min., westbound, and its companion "Atlantic Limited" makes the same schedule eastbound. The run from Harrisburg to Pittsburgh, 238 miles, across several mountain ranges, is made in 6 hr. 38 min., or at an overall speed of 36 m. p. h. In contrast with the local buses, which require 8 hr. 10 min. for the run and make between 25 and 30 stops between Harrisburg and Pittsburgh, these two limited buses make only one stop in each direction, a 10-min. rest stop at Duncansville, Pa. In addition to the limiteds, six New York-Pittsburgh expresses are operated in each direction daily, which make the through runs of 418 miles in approximately 13 hrs.

All of these runs are from 5 to 7 hrs. faster than similar runs of 3 or 4 years ago.

A similar picture is presented on the runs operated over the Lincoln highway between New York and Pittsburgh via Philadelphia and Gettysburg. The fastest of the express runs makes only two stops between Gettysburg and Pittsburgh, 175 miles, and takes 5 hr. 50 min. for the run, and several other runs equal this schedule in both directions.

In this mountainous country, overall bus speeds of 30 m. p. h., unknown a few years ago, are commonplace now. Several factors have brought this about, including the elimination of intermediate stops on the fast runs by setting up a schedule of limited, express and local runs. Greater speeds have been aided materially, too, by the mechanical improvements of the new buses operated on these runs, permitting much greater intrinsic speed with safety. A further factor is that the drivers are no longer required to remain at the wheel for many hours at a stretch.

For example, on the runs in question, the drivers' operating district is at present between Pittsburgh and Gettysburg, 175 miles.



Modern, Fast Buses Are Used for the Express Runs



# NEWS

## Charges Halved In Erie's Plan

Debtor's revamp plan filed providing 50 per cent cut in fixed interest charges

The Erie has filed a debtor's plan for reorganization with the federal district court at Cleveland Ohio, proposing a 50 per cent reduction in fixed charges, disaffirmance or modification of various leases and simplification of the corporate set-up of the Erie system. The latter process, it is proposed, would be accomplished through the acquisition, merger or consolidation of various subsidiary roads, most important of which is the Chicago & Erie, now separately operated.

Application of the provisions of the plan would effect reductions of approximately 50 per cent in fixed interest debt and 27 per cent in total debt; total fixed charges would be reduced by more than 50 per cent and total capitalization by about 20 per cent. Specifically, fixed interest charges would be reduced from \$12,107,900 to \$6,308,537 and total fixed charges, including rent for leased lines, from \$13,975,882 to \$6,484,537. The plan also provides for contingent interest charges of \$3,217,140, payable on income bonds, not included in present interest charges of the road.

Outstanding securities of the road and of its subsidiaries and leased lines which would remain undisturbed by the plan include:

New York & Erie First 4's, 1947  
Long Dock 3 3/4's, 1950  
N. Y., Pennsylvania & Ohio Prior Lien 4 1/4's, 1950  
Cleveland & Mahoning Valley Mortgage 4's, 1962  
Chicago & Erie First 5's, 1982  
Chicago & Erie Income 5's, 1982  
All equipment obligations  
Miscellaneous obligations

New York & Erie Second 5's, due September 1, 1939, and New York & Erie Third 4 1/2's, due March 1, 1938, together with certain secured bank loans, would be paid in cash.

The interests of the various other security holders and claimants are to be recognized by the issuance of the following new securities: 50-Year First and Refunding Mortgage 4 per cent bonds; 75-Year General Income Mortgage 4 1/2 per cent bonds (convertible into prior preferred or common stock); \$5 prior preferred stock, \$100 par value; \$5 second preferred participating stock, \$100 par value; and common stock of no par, or \$40 par value.

It is proposed to issue new securities to present security holders in the following

## A. A. R. Film "This Railroad Business" Portrays Railroad Program

Dramatization of the railroads' program for a national transportation policy is given in a new talking slide film entitled "This Railroad Business" which has been made available by the Association of American Railroads for presentation to railroad employees and to the general public. The new film, which is the third produced by the association as a part of its public relations program, comprises 155 illustrations and is designed for a 25-minute run.

The film calls particular attention to the inequalities of the present public attitude to transportation and pictures the benefits of the national transportation policy founded on the principle of equal rights for all forms of transport and special privileges for none. The film concludes that only under such a policy can railroad recovery, which is so essential to national prosperity, be brought about.

It is emphasized that the film will be especially valuable in acquainting railroad employees with the facts of their industry. Present difficulties of the railroads are discussed in simple straight-forward manner, and the series of pictures serve to dispel any illusions that these difficulties may be due to deficiencies of service, over-capitalization or high fixed charges.

percentages of total claims (principal and interest): (1) First Consolidated Prior Lien 4's—100 per cent in 50-Year First and Refunding 4's; (2) Erie & Jersey First 6's—100 per cent in 50-Year First and Refunding 4's; (3) Genesee River First 6's—100 per cent in 50-Year First and Refunding 4's; (4) First Consolidated General Lien 4's—10 per cent in 50-Year First and Refunding 4's, 65 per cent in 75-Year General Income 4 1/2's, and 25 per cent in prior preferred stock; (5) General Mortgage Convertible 4's—10 per cent in 50-Year First and Refunding 4's, 40 per cent in 75-Year General Income 4 1/2's, and 50 per cent in prior preferred stock; (6) Refunding and Improvement 5's—3.1 per cent in 50-Year First and Refunding 4's, 19.4 per cent in 75-Year General Income 4 1/2's, 15 per cent in prior preferred stock, and 62.5 per cent in second preferred participating.

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## Truckers Want I.C.C. for Boss

See commission more lenient on employer than wage and hour law

The Interstate Commerce Commission heard oral argument on December 16 on the question of whether it should control the maximum hours of non-operating motor carrier employees or permit them to be regulated by the Wages and Hours Administrator under the Fair Labor Standards Act. After calling for briefs on the subject, the commission decided some time ago to invite all those interested in the case to discuss the legal aspects of it.

In general, the motor carrier industry took the position that the commission has full and complete jurisdiction over the maximum hours of motor carrier employees, both operating and non-operating. In direct opposition were the representatives of organized labor in the industry who told the commissioners that they preferred to be regulated under the Fair Labor Standards Act and that in their minds, there was no question but that the commission did not have power to regulate the non-operating employees. It was generally conceded that it did have authority over the operating employees.

Representing the industry was J. Ninian Beall, the general counsel for the American Trucking Associations, Inc., who began his argument by telling the commission that his position was that:

1. The commission has jurisdiction to prescribe qualifications and hours of service for all employees of common and contract carriers, subject to the Motor Carrier Act.

2. The jurisdiction of the commission covers all the purposes and policies of the Motor Carrier Act.

3. Congress has prescribed full, adequate and complete legislative standards for the exercise of jurisdiction.

4. The Motor Carrier Act, as written, is clear and unambiguous and confers jurisdiction per se.

5. The intent of Congress is also made clear upon consideration of both the Motor Carrier Act and the Fair Labor Standards Act—and the legislative histories of both acts.

6. Congress intended to exempt all classes of employees of common and contract carriers from the hour provision of the Fair Labor Standards Act.

Soon after Mr. Beall had started his

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## Blames Rail Ills On Trade Shift

Writer lays traffic decline to decentralization of industry, not competition

Believing that the major cause of the decrease in railroad freight traffic noticeable since 1921 is not unrestrained traffic, waterway or pipe line competition, or the lack of durable goods for transport, but rather the trend toward decentralization of industry, Stephen R. Truesdell, special assistant in the president's office, Chicago & North Western, offers as a partial cure therefor co-ordination and consolidation of railroad and truck transportation plus understanding on the part of railroad labor, in an article entitled "Basic Factors in the Plight of the Railroads" published in the December "Civil Engineering," official organ of the American Society of Civil Engineers, and reprinted in the *Annalist* of December 7.

The author bases his thesis of decentralization almost entirely upon estimates which, he alleges, indicate that the business performed by all transportation media in the country has failed to keep pace with industrial production. The fact that, while industrial production in 1937 had risen to 92 per cent of what it was in 1929, railway revenues then were only 67 per cent of those of 1929, he blames not on transportation competition, but on changing techniques in the industrial set-up. "For example," he says, "the transportation income from all sources in 1929 was estimated by the Bureau of Economic Research of the Department of Commerce at \$6,847,000,000 (of which \$1,194,000,000 was from motor transport). In that year the index of industrial production was 119. In 1936 the industrial index was 105, which would indicate that transportation revenue should have been \$6,030,000,000; yet it was actually only \$5,129,000,000 (of which \$1,274,000,000 was earned by motor transport,) 85 per cent of its 1929 ratio to industrial production." In brief, he believes that "there is on the whole much less transportation of all kinds now, per unit of industrial production or per unit of national income, than in 1929."

As a matter of fact, Mr. Truesdell claims, there has been a steady decrease in "relative" railway revenues and freight, not only since 1929, but since 1920. As truck competition was almost negligible during the early part of this period of decline, the author assumes that the "relative" loss of rail traffic is a result of "major economic changes" rather than of competitive transport. An appended table in the article reveals that by relative decline, the author means the decline of revenues and traffic in the years since 1920 as ratio comparisons with the Federal Reserve index of production and the annual national income figures,—not an absolute decline. The gist of his reasoning is that in the comparatively good years between 1920 and 1929, railroad revenues and traffic did not show the large progressive increases displayed by the two indices of in-

dustrial activity and general business conditions; further, that this loss of transportation business bids fair to remain permanent, in illustration of which he points out that traffic density per mile of road in 1935 was 9.3 per cent less than in 1921, which the author terms a depression year.

Speaking of a constantly lowered level of rates, Mr. Truesdell points out that the traffic departments of the 250 major transportation companies are no match at all for the traffic representatives of 175,000 manufacturers, plus the innumerable organized commercial and trade groups all working to obtain lower freight rates. "These industrial and trade groups," he says, "know exactly how the level of freight rates will affect the sale and distribution of their products, but the transportation companies have only a limited knowledge of the effect

### Employees Must Help Save Carriers

"Co-ordination and consolidation of transportation, if accomplished, offer a partial solution to the rail problem. With the great decrease in traffic and the use of improved transportation machinery, labor must expect to absorb some of the effects of changed transportation conditions. When a powerful competitive type of transportation, such as the truck, enters the field, with employees who will work with enthusiasm and energy at lower rates of pay, there must be some concessions from the labor employed by the older modes of transportation if they are to remain in business. Otherwise these older forms of transportation will be destroyed piecemeal by high costs, regardless of the economic facts or the needs of the community."

*From "Basic Factors in the Plight of the Railroads," by S. R. Truesdell*

of decreased rates on rail revenues. Because of this pressure from all directions, the rail lines find great difficulty in resisting the continuous reduction of freight rates, especially as a powerful competitive factor—motor transportation—has entered the field with rates made on an entirely different basis."

The story of rate-making in recent years has been one not only of a general lowering of the rate level but also, because of the lack of affirmative policy by regulatory bodies and their susceptibility to pressure groups, a relatively greater lowering of rates on manufactured products "while the great extractive industries of agriculture, mining and foresting foot the bill." This fact, in the author's opinion, has made it advantageous for industry to move its scene of operation close to the source of its raw materials to escape the relatively high freight rates per value of product levied on such commodities. This re-location, he claims, has greatly reduced the amount of long-distance cross-haulage from West and South to northern factories and back to western and southern consuming areas, thus causing a large decrease in total ton-

(Continued on page 932)

## Views Vary on Merger in N. W.

Stockholders want to merge now, bondholders would reorganize roads first

Strong differences of opinion between the managements and stockholders on the one hand and the bondholders of the Chicago, Milwaukee, St. Paul & Pacific and the Chicago & North Western on the other became evident when the Interstate Commerce Commission heard oral argument on December 15 on the question of whether or not these carriers' reorganization cases should be reopened to allow the stockholders to present testimony in favor of a plan or reorganization which contemplates the merging of the two roads into one large system.

The managements and the stockholders took the position that the commission should reopen the two cases for testimony on such a merger plan even though such action should delay reorganization for several years. The bondholders, on the other hand, contended that if any consolidating were to be done, it should be consummated only after the two properties had been reorganized and turned over to the bondholders. All representatives of the bondholders said that they were in favor of consolidation but that they were opposed to doing it in this way and at this time.

E. R. Johnston, representing the Milwaukee preferred stockholders and the North Western common holders, told the commission that he had become convinced that consolidation and not co-ordination was the real answer to these two roads' problems. He also contended that consolidation was feasible, practical, in the public interest, and obviously in the interest of the stockholders. It was also Mr. Johnston's opinion that the case of the two roads presented "an ideal situation" for testing out the idea that consolidation will solve railroad ills.

Both carriers, he pointed out, are now being reorganized under Section 77 of the Bankruptcy Act and the commission has the power, under the statute, of requiring consolidation of the properties. This is not possible under the Transportation Act of 1920, he said, under which consolidations must be voluntary and must receive not only the approval of the managements of the affected roads, but also virtually the unanimous approval of the security holders. He also added that the question of buying out dissenting minority interests presented itself. Under Section 77, Mr. Johnston declared that none of these problems were apparent.

Mr. Johnston told the commission that studies already made indicated that consolidation of the two roads would result in an annual saving of at least \$10,000,000. He attacked the position of the institutional bondholders, saying that it was basically unfair.

In explaining the merger plan, Mr. Johnston said that it would mean that only

(Continued on page 931)

## Reporters Rib Railroad Heads

Carriers are lampooned by financial writers — Roads seen ready for museum

Just as the Gridiron Club in Washington caricatures the federal office-holders at its periodic dinners held in the national capital, so the New York Financial Writers' Association put the leaders of industry and finance across the barrel at a banquet at the Hotel Astor, New York, on December 16.

The railroads got off easy—compared to the banks and the utilities. Nevertheless, plenty of fun was poked at them. The scene of the skit on the railroads was an old coal cellar, supposed to represent the headquarters of the Association of American Railroads, but "entirely fitting to our present economic condition," as "Mr. Clement" explained to the audience.

The room was decorated with a large diagram, purporting to show "How the Railroad Dollar Was Spent." According to it, 50 per cent of railroad revenues were "unaccounted for," 25 per cent went for "mistakes of management," 23 per cent went for operating expenses, while investors and labor each got 1 per cent. The scene opened with "Clement" alone at the directors' table asleep. Two men entered, identified as "Williamson" and "Palmer." "Williamson" wanted "Palmer" to awaken "Clement," but "Palmer" said: "Shut up, Williamson, he's my boss."

All the "A. A. R. directors" were late in arriving at the meeting. None had come by train. "Palmer's" excuse was that his bus was late. "Gray's" automobile had broken down. "Pelley's" bicycle had folded up. "W. A. Harriman," dressed in a ski costume, arrived by plane from Sun Valley, and advised the other executives to: "Develop your side lines. Forget about the railroads." "Palmer" answered that the country seemed to be following this advice.

Over the table was a large sign announcing a "railroad prosperity campaign." "Clement" urged his colleagues to unite in this campaign. His argument was: "You have nothing to lose but public support and not much of that." "Williamson" demurred that, "We no sooner make an agreement than one of us chases around the corner to find out how to run out on the others."

At this juncture a shot was heard off-stage and "Daniel Willard" came running in, explaining that he had just escaped an attacker who mistook him for a Pennroad director. Asked why he was late, he said that he had been out "riding the line" and that he had seen "one or two passengers."

Seeking means of improving railroad service, "Gray" suggested that "it would be a swell idea if someone would invent a device so that the heat in railroad cars can be turned off as well as on." "Clement" thought this was a "pretty radical suggestion." "Pelley" said he had a model of a new invention and brought forth an "emergency" axe. Its purpose, he said, was to open car windows. "Willard"

spoke favorably of the device saying "that's what they have been using on the B. & O. bondholders."

At this time the "Interstate Commerce Commission" called on the telephone to inquire how much kerosene the railroads had burned in parlor car lamps in 1894. "Gray" said: "Tell 'em 50,000 barrels and 12 gallons. Nobody will know the difference." So "Palmer" replied into the phone: "49,342 barrels and 12 gallons. Yes, yes, we always try to be scrupulously accurate."

A newspaper reporter entered in search of news and "Williamson" said: "Doesn't he know that we haven't had any news in years?" "Nevertheless," was the reply of "Clement," "we must cultivate the press. Give him statement 150-A, the one we used three years ago."

A stranger entered the room and "Robert R. Young" asked him who he was. He replied, "I am the guy who sold you Alleghany Corporation." Thereupon "Young" pulled out a gun and shot him. The "Smithsonian Institute" called on the telephone, causing considerable excitement by what was at first thought to be an offer to take over the railroads but, it later developed, all the Institute wanted to take over was the railroad directors.

Next a telegram arrived, and all the railroads knew it was from the government because it came "collect." It developed that the message was from Jesse Jones of the R. F. C. seeking to know if any railroads wanted to borrow some government money, whereupon there was a wild scramble for the telephone—which was joined even by the dead man whom "Young" had shot. "Young" was identified by a "sandwich" sign which he wore which, on one side read: "Guaranty Trust Unfair," and, on the other, "Alleghany for Sale Cheap."

Authorship of the skit on the railroads is not denied by L. B. N. Gnaedinger, railroad reporter for the New York Times.

Following the presentation of the one-act tragedy described above, "Palmer" sang the following before the footlights, to the tune of the popular song, "Alone."

A loan! A loan for a railroad that's down to stay.

A loan! A loan that New Haven can not repay.

The R. F. C. was founded to give away its dough,

But nothing for us. Oh no! Oh no!

A loan! A loan that would give us some cash to spend.

A loan! That would only postpone the end.

God give that Jesse Jones a heart

That's made of mush, not stone.

A loan! Dear Jesse, we're asking of you a loan.

However, as set forth at the outset of this report, the utilities and the banks and other industries with Wall Street connections got a much more severe ribbing than the railroads did. At the close of the festivities, President Martin of the New York Stock Exchange, in a "rebuttal" speech, presented to Elliott Bell, the head of the financial writers' organization a copy of the book, "How to Make Enemies and Alienate People."

## U. S. Steel Opens New Irvin Works

New Carnegie-Illinois mill with 600,000 tons capacity per year dedicated Dec. 15

The new Irvin Works of the Carnegie-Illinois Steel Corporation near Clairton, Pa., 13 miles south of Pittsburgh, was formally dedicated on Thursday, December 15. This project, named for William A. Irvin, former president of the United States Steel Corporation, and now vice-chairman of the board, virtually completes the \$642,000,000 ten-year modernization program of the United States Steel Corporation. Ground was broken at the Irvin Plant on May 22, 1937. It was necessary to cut into the hillside and move about four million cubic yards of earth in order to level the 653-acre plot, 227 ft. above the Monongahela river. The 17 main buildings cover more than 50 acres. The first rolling mill equipment, consisting of a five-stand, tandem cold mill, was placed in operation March 2, 1938. The first tin plating operation started shortly thereafter, on March 15, but it was not until November 1 that the first hot strip mill operations were inaugurated.

The principal units of the completed plant consist of an 80-in. hot strip mill, 10-stand tandem; 84-in. cold reduction mill for sheets, three-stand tandem; 54-in. cold reduction mill for sheets, single reversing; 42-in. cold reduction mill for tin plate, five-stand tandem; and a tin house with 14 tinning stacks. There are more than 3,750 employees, with an estimated payroll of \$30,000 per day. Thirteen miles of standard gage railroad track are included in the plant. The building of this gigantic works required the services of more than 1,100 contractors, exclusive of the U. S. Steel Corporation subsidiaries.

It was announced that the first order to be placed at the new Irvin Works by a railroad, was that of the Pennsylvania for 1,045 tons of sheets, 36 in. to 72 in. in width, to be used for general repair and maintenance of equipment at the Altoona, Pa., shops.

An interesting ceremony took place during the early part of the day of the dedication. Mr. Irvin began his business career as a Pennsylvania Railroad telegraph operator in his home town of Indiana Pa. President Clement, of the Pennsylvania, had a search made and was able to locate the instrument which was used by Mr. Irvin nearly 50 years ago. J. F. Deasy, operating vice-president of the Pennsylvania, representing Mr. Clement, presented it to Mr. Irvin.

Hundreds of visitors came to Pittsburgh from long distances, special trains being run to that city from New York and Chicago. The guests were conducted on a complete and well-organized tour, stopping for luncheon in the middle of the day in a part of the plant cleared for that purpose.

In the evening about 1,600 guests gathered for a commemorative dinner in the Hotel William Penn. John L. Perry, pres-



ident of the Carnegie-Illinois Steel Corporation, acted as toastmaster. After an address by Benjamin F. Fairless, president of the U. S. Steel Corporation, the former chairman of the board, Myron C. Taylor, spoke over the phone from London, England. "What you see before you," he said, "is a working symbol of that evolution and progress which have provided from the ashes of yesterday the greater utilities to serve and also to broaden the advanced needs of today." He directed attention to the fact that no single individual owns as much as one-half of one per cent of the capital stock of the corporation, so that in a real sense, it represents the savings—in other words, capital—of men and women. "That is what I call a practical working democracy in ownership," said Mr. Taylor.

Undoubtedly it was the difficult experiences which he is having abroad in connection with refugee work that caused him to make a comparison with conditions among the Steel Corporation workers. "Among them," he said, "are no class distinctions, no narrow religious lines of feeling, no color or race discriminations. They are a cross section of America. They exemplify the declaration and the hope of the founders of the nation who covenanted under God to guarantee for free men, without distinction of class, race or creed, a freedom of person and of property and a right to happiness."

Because of death in the family, it was impossible for the chairman of the board of the U. S. Steel Corporation, Edward R. Stettinius, Jr., to be present, but he sent a message which was read by the toastmaster.

After an address by E. M. Voorhees chairman of the finance committee of the corporation, Mr. Irvin, the guest of honor, was presented. He directed attention to the fact that during the past five years continuous rolling mills for the production of flat steel products, were installed at Youngstown, Gary, Homestead, Birming-

ham and Cleveland, at a cost of \$185,000,000, replacing obsolete and less effective equipment. The prices of a large majority of products are lower today than in 1926 which has often been considered as a year of normal price levels. Improvement in quality, in strength, ductility, durability and tolerances has, however enabled fabricators to produce their products with lighter sections and greater economy. The price per ton is not, therefore, a yardstick of steel prices. He pointed out that more than 450,000 individuals own the steel business in the United States and that more than one-half million workers are employed in it. Wage rates have increased materially since 1926. The common labor rate in 1926 in Pittsburgh, Cleveland and the Chicago districts was 44 cents per hour; today it is 62½ cents per hour. Because of research and through technical developments many kinds of superior alloys have become available in the railroad field. For instance, the development of stainless steel and the low alloy, high strength steels have made possible the light-weight, high-speed trains which are operating so successfully.

Mr. Irvin also pointed out that taxes are a major item in the cost of operation. In 1926 the U. S. Steel subsidiaries paid for local, state and federal taxes, exclusive of federal income tax based on net income, a total of \$35,313,000. Similar taxes in 1937 amounted to \$58,548,000, an increase of 40 per cent. The 1937 taxes, exclusive of federal income taxes, were equal to about \$6 per ton of steel sold, an increase of about \$2.50 per ton over 1926. Industry is compelled in the interest of economy and self-preservation, to abandon old-fashioned operations at isolated, high-cost plants. It must concentrate activities in modern plants, designed to produce in large quantities, at low cost.

Other speakers included John J. Kane, chairman of the Allegheny County Commissioners and Cornelius D. Skelly, mayor of Pittsburgh.

### 1937 Statistics of Railways

The Fifty-first Annual Report on the Statistics of Railways in the United States has been released by the Interstate Commerce Commission. It is for the year ended December 31, 1937, and copies are obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., at \$1.50 each.

### H. & M. Fare Petition Denied

The Interstate Commerce Commission has denied the petition of the Hudson & Manhattan for reconsideration and reargument of the case wherein the commission permitted an increase from six cents to eight cents in the fare between Hudson Terminal, New York, and stations in Jersey City, N. J., and Hoboken. The H. & M. had sought a 10-cent fare.

### New England Hurricane Service Order Vacated

The Interstate Commerce Commission on December 16 vacated Service Order 64-A which had directed carriers serving New England to forward traffic by the most available open routes during the recent hurricane emergency. The order states that transportation in the area affected has been restored to normal, "making rerouting no longer necessary."

### Santa Fe Sleeper Buses

Overnight limited sleeper service between Los Angeles and San Francisco, via Santa Fe Trailways buses, was inaugurated on December 21. These sleeper coaches will leave Los Angeles at 8:15 p. m. daily, and arrive at San Francisco the following morning at 7 a. m. Southbound, the sleeper buses will leave San Francisco at 8:15 p. m., and arrive at Los Angeles at 6:55 a. m. Stops will be made enroute at Fresno, Bakersfield, Hollywood and Oakland.

### I. C. C. Wants Data on Highway Traffic of Railroads

The Interstate Commerce Commission has issued an order requiring Class I railroads, excluding switching and terminal companies, to file for each quarter of 1939, "and thereafter until further notice," data on highway freight and passenger traffic handled in their own vehicles or carried for them in highway vehicles of others. The reports are to show the revenue tons, revenue ton-miles, revenue passengers and revenue passenger-miles.

### Must Segregate Forwarder Traffic in Commodity Statistics

The Interstate Commerce Commission, Division 4, has issued an order requiring Class I railroads, other than switching and terminal companies, to segregate in their quarterly freight commodity statistics reports the freight traffic handled by forwarders. The order, which applies to reports for the first quarter of 1939, "and thereafter until further order," requires the carriers to show for forwarder traffic as a whole "the same information as to carloads, tons, and revenue that is required for each of the other commodity classes, said information to appear in a footnote against Class 701; provided, that to avoid



Newman-Schmidt, Pittsburgh

J. F. Deasy, Pennsylvania's Operations Vice-President, Left, Taps Out "God Bless You" on a Telegraph Outfit of Which One Key Was Used by W. A. Irvin, Right, When a Telegraph Operator of 13. The Key Was Presented to Mr. Irvin, Vice-Chairman, United States Steel Corporation, at the Opening of the Irvin Steel Works on December 15



undue clerical labor, said footnote may be restricted to the principal forwarding companies or their subsidiaries originating in the aggregate not less than approximately 80 per cent of such traffic handled on respondent's line."

### Fred Harvey Employees Under Labor Act

The Interstate Commerce Commission, Division 3, has held that employees of the Fred Harvey dining-car service on the Atchison, Topeka & Santa Fe are "employees" within the meaning of the fifth paragraph of the Railway Labor Act's section 1. Commissioner Porter, concurring in part, agreed that the buffet porters and barber baggagemen are employees of the Santa Fe, but he was unable to bring himself to believe that the same can be found as to the dining car employees.

### Santa Fe Budget Over \$18,000,000

The directors of the Atchison, Topeka & Santa Fe on December 20, approved a budget appropriating \$18,000,000 for improvements during 1939. This includes a carry-over from the 1938 budget of approximately \$12,500,000 for items on which no work has been done, or where begun, will not be completed by the end of this year. The carry-over from 1938 is substantially less than the carry-over from 1937. Approximately \$3,500,000 is for the improvement of cars and locomotives in the Santa Fe shops.

### Christmas Eve Program in Grand Central, N. Y.

A special musical program will be given for last minute travelers in the main concourse of Grand Central Terminal, New York, on Christmas Eve. In addition to organ music at intervals throughout the day, the Bel Canto Trumpeters will play and selections will be rendered by the Stevens College Alumni Glee Club and the Railway Expressmen's Glee Club. Solos also will be given by selected artists. From 6:40 to 6:45 p.m. the program will be broadcast over C. B. S. stations.

### Special Gazette Issue Covers Overseas British Roads

A survey of recent developments on railways in all parts of the British Empire, except Great Britain, and on British-owned roads in such foreign countries as Argentina and Brazil has been published by the Railway Gazette (33 Tothill street, London, S. W. 1) in a special issue entitled "Overseas Number." Containing 149 pages of text and well-illustrated with large-size photographs, giving views of all major British overseas railroads, the issue covers the field mainly through individual reports on current activities and trends by a chief officer of each system.

### Burning Express Car Causes Death of Messenger

Forced to cling to the side of a blazing express car, E. D. Owens, an express messenger on a Baltimore & Ohio passenger train between Chicago and New York, lost his grip and was fatally injured in his fall from the speeding train near Connellsville,

Pa., on the evening of December 16. The assistant messenger sustained his hold on the side of the car and suffered only minor burns. According to news reports, an oil lamp on the express car exploded about nine miles from Connellsville. Unable to put out the fire, the two occupants of the car were forced to take refuge on outside grip irons.

### Bureau of Signaling Economics to Close Doors

The Bureau of Railway Signaling Economics, 347 Madison Avenue, New York, will be discontinued on December 31. The bureau was organized in 1917 for the purpose of studying the economics of railroad signaling by the late Henry M. Sperry, who carried out invaluable pioneer work in his investigations of the economic value of railway signaling during his service as director of the bureau, which continued until his death in 1933. Since then the bureau has been successively under the direction of W. H. Elliott, B. T. Anderson and S. E. Gillespie.

### C. & E. I. Opens Coal Exhibit

The Chicago & Eastern Illinois on December 15 officially opened its permanent coal exhibit and research bureau in the McCormick Building, Chicago. The bureau will aid coal producers, carriers and consumers of coal alike, and all will have free access to the permanent exhibit and an opportunity to discuss problems. The bureau is also studying air pollution. By research and education concerning the proper use of the various types of coal, and use of various types of heating and power units, the bureau intends to promote coal economy. By study and co-operation with civic leaders and other research experts, it expects to minimize air pollution.

### P. R. R. Establishes Special "Outside" Man at Important Ticket Windows

The Pennsylvania has placed a "walking bureau of information" in front of its ticket windows at main stations in New York, Philadelphia, Pa., Harrisburg, Pittsburgh, Baltimore, Md. Washington, D. C., and Chicago, for the convenience of passengers during the busy Christmas and New Year holiday rush. The main duties of the "outside" man are to see that there is no congestion at any window and to assist patrons who are unfamiliar with train facilities and train services, and he is qualified to direct patrons to and from proper trains, assist in taking parcels, supply timetables and render other general services.

### B. & O. Celebrates with Minstrels and Christmas Specialties

In observance of the Christmas holidays the Baltimore & Ohio again this year formed groups of strolling minstrels to sing Christmas carols on its main line trains and at stations in Jersey City, N. J., Philadelphia, Pa., Wilmington, Del., and Washington, D. C., on December 22. Mount Royal station, Baltimore, which was selected as headquarters for the Yuletide celebration, was decorated appropriately,

and beginning December 17, a number of special Christmas features were presented, including a miniature railway and an historic cradle placed originally on a float during a parade held in 1828 celebrating the laying of the first stone on the Baltimore & Ohio.

### Kansas Intrastate Rates

The Interstate Commerce Commission, in a report by Commissioner Rogers, has found that the maintenance of intrastate rates on petroleum and its products, brick and related articles, and sand and gravel and related articles in Kansas lower than the interstate bases is unduly prejudicial to interstate shippers and localities and unjustly discriminates against interstate commerce.

The commission will delay for 30 days the question of the entry of an order carrying the findings into effect, pending receipt of advice of the action of the State Corporation Commission of Kansas on reconsideration.

The dissent of Commissioner Aitchison is noted while Commissioner Miller did not participate in the disposition of the proceeding.

### Would Cut Sugar Rates

Examiner Frank M. Weaver in a proposed report on further hearing in I. & S. Docket No. 4096, Sugar from Gulf Port Groups to Northern Points, has recommended that the Interstate Commerce Commission modify in several respects the findings of its previous report in the case. The effect of the examiner's recommendation would be a reduction of about 20 per cent in the all-rail rates on sugar between Northern and Southern points. He would make the basis 22 per cent of the Southern first-class scale as compared with the present 26.7 per cent.

Other recommended findings are directed to the removal of undue prejudice in specified instances. Among such instances is the present set-up of certain water-rail carload rates on sugar, found to be preferential to Baltimore, Md.

### A. C. L. Inaugurates All-Coach Train "Vacationer"

The Atlantic Coast Line inaugurated the "Vacationer," its first all-coach train between the north and Florida points, on December 15. Featuring new coaches with individual reclining seats, lounges and dressing rooms, together with diner service, the train is a one-night-out run between New York and leading Florida resorts. It is scheduled to leave Pennsylvania station, New York, daily at 1:45 p. m., in combination with the Gulf Coast Limited. At Washington, D. C., the coaches are assembled into a separate train which leaves at 6:45 p. m., five minutes before the Gulf Coast Limited, with arrival at Miami at 6:10 p. m. Through coaches also leave Boston, Mass., at 8:30 a. m., and run to New York via the Hell Gate route. Florida destinations include Jacksonville, Tampa, St. Petersburg and Miami.

The addition of the Vacationer to its roster gives the Atlantic Coast Line six daily trains for the winter season between the north and Florida. Beginning January

12, the Florida Special, 52-year old, all-Pullman premier train of the road, will run as two complete trains daily from New York to Miami. The coaches of the Vacationer were described in the *Railway Age* of April 23, page 733.

### Freight Car Loading

The carloading reports were so delayed in the rush of Christmas mail that the Association of American Railroads was unable to compile totals for the week ended December 17 on Thursday, as had been anticipated.

As reported in last week's issue the loadings for the previous week ended December 10, totaled 619,340 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R. follows:

Revenue Freight Car Loading			
For Week Ended Saturday, December 10			
Districts	1938	1937	1936
Eastern .....	132,328	132,448	164,987
Allegheny .....	114,319	108,270	148,982
Pocahontas .....	43,168	45,163	53,821
Southern .....	95,456	98,604	110,005
Northwestern .....	75,869	73,571	85,072
Central Western .....	108,085	106,596	114,336
Southwestern ..	50,115	54,614	61,893
Total Western Districts .....	234,069	234,781	261,301
Total All Roads .....	619,340	619,266	739,096
Commodities			
Grain and Grain Products .....	34,421	34,588	35,855
Live Stock .....	14,545	14,731	16,778
Coal .....	128,210	157,573	170,664
Coke .....	6,754	6,430	11,315
Forest Products .....	28,043	26,717	34,285
Ore .....	10,281	8,665	8,156
Merchandise I. C. I. .....	151,325	150,238	166,901
Miscellaneous ..	245,761	220,324	295,142
December 10 .....	619,340	619,266	739,096
December 3 .....	649,086	620,325	745,295
November 26 .....	562,082	555,762	680,300
November 19 .....	657,477	644,927	789,772
November 12 .....	636,710	685,926	784,980
Cumulative Total, 49 Weeks .....	28,787,873	36,157,454	34,236,213

In Canada.—In the December 10 week cars loaded totaled 43,024, as compared with 47,041 a year ago and 47,707 in the preceding week, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Dec. 10, 1938 .....	43,024	23,247
Dec. 3, 1938 .....	47,707	23,034
Nov. 26, 1938 .....	48,129	20,968
Dec. 11, 1937 .....	47,041	23,303
Cumulative Totals for Canada:		
Dec. 10, 1938 .....	2,317,006	1,018,459
Dec. 11, 1937 .....	2,504,456	1,288,364
Dec. 5, 1936 .....	2,344,259	1,153,577

### Nebraska Roads Ask for Lower Intrastate Rates

All Nebraska railroads have joined in asking the state railway commission for authority to lower intrastate freight rates on most commodities approximately 20 per cent, or to about the level of the present uniform truck rates, for a trial period of one year. The object of the move is to meet truck competition. C. J. Rohwitz of Omaha, general freight and passenger agent of the Chicago, Burlington & Quincy, and spokesman for the railways' committee, stated in a letter to the state railway commission that, "Although the rates sought to be made effective represent serious reductions in the rail carrier's rates, it is hoped that the increased volume that may be obtained as a result of such reduced rates will allow the carriers a much needed in-

crease in their revenues. Your petitioners have been severely handicapped in their efforts to secure Nebraska state traffic since February 14, 1938, (the date the uniform truck rates became effective). We have given long and careful study to the matter and feel that the rail carriers are justified in meeting the rates of other common carriers, and certainly should not be deprived of the privilege to meet truck rates."

### Twentieth Century Increases Business 40 Per Cent in Six Months

The first six months of operation of the New York Central's new streamlined Twentieth Century Limited has brought an increase of approximately 40 per cent in passenger traffic on the run, according to L. W. Landman, general passenger traffic manager. Comparable increases have also been enjoyed in the Century's passenger revenues, which are estimated at almost \$1,200,000 for the six-months period. At the same time the new equipment has made possible a more than 10 per cent decrease in the number of sections necessary to handle the business, with resultant reduced operating costs. It is pointed out that in September, for example, 582 more passengers were handled on this train with only seven more cars than would have been required by use of the old equipment.

### Illinois Manufacturers Association Announces Rail Aid Policy

The Illinois Manufacturers Association, of which W. Homer Hartz, president of the Morden Frog & Crossing Works, Chicago, is president, has drawn up formal recommendations for presentation to the President urging legislation giving the railroads more freedom in the management of their properties, including the repeal of that portion of the Interstate Commerce Act giving the Interstate Commerce Commission a mandate to exercise its judgment in rate matters and restoring to the railroads more authority in pricing the services they render. In its recommendations, the association suggests that any proposal or program designed to aid the carriers shall be in conformity with the principles of private ownership and operation and recommends greater freedom for the roads in conducting voluntary and independent negotiations for consolidation along natural lines. The recommendations also suggest federal loans to the railways until such time as they are enabled to enlist private capital.

These policies were approved unanimously by the board of directors of the association after a joint inquiry by the Railroad and Traffic committee.

### I. C. C. Launches Probe of South Buffalo

The Interstate Commerce Commission has instituted upon its own motion an investigation of the South Buffalo, an affiliate of the Bethlehem Steel Company, which connects that company's Lackawanna, N. Y., plant with trunk line carriers.

Docketed as Ex Parte No. 128, the probe, according to the order, is designed to "obtain full and complete information as to the South Buffalo concerning its status as a carrier; and whether: Its rela-

tions and arrangements with any controlling corporation and others, including transport agencies; its accounting, operating, tariff publishing, and other practices; its services of any kind performed; and its compensation for such services, or reimbursements or disbursements, in any form for any purpose, are lawful and consistent with the economical and efficient management of any or all respondents named in this order in respect of the matters above stated pertaining to the South Buffalo, with a view to determining whether and to what extent there may exist violations of said act, and, in proper case, of making such findings of fact and orders, or taking such action, in respect of any such violation as may be deemed appropriate."

In addition to the South Buffalo the commission's order names as respondents the following: Baltimore & Ohio; Buffalo Creek (Erie and Lehigh Valley, lessees); Canadian National; Delaware, Lackawanna & Western; Erie; Grand Trunk [Lines in the United States, east of the west bank of the Detroit and St. Clair rivers comprising the following carriers: Canadian National, Champlain & St. Lawrence (Canadian National, lessee), and United States & Canada (Canadian National Railway Company, lessee)] International; Lehigh Valley; Michigan Central; New York Central; New York, Chicago & St. Louis; Pennsylvania; Pere Marquette; Wabash; West Shore.

### Quarantine to Prevent Spread of White-Fringed Beetle

A quarantine on account of white-fringed beetle infestations in areas in Alabama, Florida, Louisiana and Mississippi—where this pest has become established as determined by extensive surveys during the past field season—was announced on December 15 by the Secretary of Agriculture. Under the provisions of this quarantine which becomes effective January 15, 1939, the interstate movement from the regulated areas of specified commodities is subject to inspection and certification requirements.

Movement of such materials as soil, compost, manure and balled nursery stock, as well as potatoes and sweet potatoes, is regulated throughout the year. Bare-rooted nursery stock and other plants, beans, peas, peanuts in shells, cotton, hay and other roughage, lumber and other unmanufactured wood, building materials, used machinery, junk, and similar articles are regulated part of the year.

### Southeast Roads to Re-establish Cent-and-Half Coach Rate

Tariffs restoring the one-and-one-half-cents-per-mile basic coach rate in Southeastern territory were expected to be filed this week, it was revealed following a December 20 meeting at Atlanta, Ga., of the passenger traffic officers of the roads involved. The decision to reduce the coach fare from two cents per mile to one and one-half cents was announced on December 16 following a meeting of the Southeastern Presidents' Conference in Washington, D. C.

The brief announcement stated that the



meeting had voted in favor of re-establishing the lower fare, to become effective "as soon as tariffs can be published," probably "sometime in January." The one-and-one-half-cents-per-mile coach rate was previously in effect in the Southeast for some time prior to November 1, 1937, when the present two-cent rate was established. The petition in the latter connection told the Interstate Commerce Commission that the carriers felt that the higher fare would help to alleviate their financial situation.

### September Accident Statistics

The Interstate Commerce Commission's completed statistics of steam railway accidents for September, 1938, now in preparation for the printer, will show:

Item	Month of September		9 months ended with September	
	1938	1937	1938	1937
Number of train accidents .....	525	579	4,165	6,465
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed .....	238	240	1,794	2,055
Injured .....	242	216	1,959	2,098
Passengers on trains:				
(a) In train accidents*				
Killed .....	8	...	52	...
Injured .....	67	26	360	362
(b) In train-service accidents				
Killed .....	...	2	13	10
Injured .....	139	172	1,388	1,486
Travelers not on trains:				
Killed .....	...	2	6	10
Injured .....	51	62	550	575
Employees on duty:				
Killed .....	46	48	358	507
Injured .....	1,419	1,980	11,801	18,461
All other nontrespassers:†				
Killed .....	128	192	1,103	1,461
Injured .....	438	614	3,904	5,039
Total — All classes of persons:				
Killed .....	420	484	3,326	4,043
Injured .....	2,356	3,070	19,962	28,021

\* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property.

† Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Number of accidents	259	361	2,340	3,094
Persons:				
Killed .....	109	161	1,009	1,305
Injured .....	298	422	2,706	3,512

### Committee-of-Six

President Roosevelt's railroad committee-of-six was in Washington this week for a final series of sessions in which it was expected that the group might complete its report for submission to the White House by the end of the week. Carl R. Gray, vice-chairman of the Union Pacific, and George M. Harrison, chairman of the Railway Labor Executives' Association, two members of the committee, called on the President last Monday, but refused to reveal anything about their White House discussion. Mr. Harrison called it "a general visit" and added that the committee was working with a view of getting the report to the President by the "end of the month."

Meanwhile journalistic speculations about what the committee will recommend are being built around such matters as a revision of the rule of rate-making, liberaliza-

tion of Reconstruction Finance Corporation lending, repeal of land-grant rates, sale of the government-owned Inland Waterways Corporation and consolidation legislation. There was some thought that Mr. Roosevelt conferred with Messrs. Harrison and Gray with the idea of putting recommendations on the railroad problem into his forthcoming annual message to Congress; but Mr. Harrison did not know about that.

On Capitol Hill Chairman Lea of the House committee on interstate and foreign commerce has announced that his committee will begin hearings on proposed transportation legislation shortly after the convening of Congress on January 3, 1939. The sub-committee which Mr. Lea appointed at the close of the last session to study co-ordination of transport regulation was unable to get a pre-session start on its studies, and such proposals will now be left for the hearings. Chairman Wheeler of the Senate committee on interstate commerce has announced that his committee will take no action until the report of the President's committee-of-six is available.

### Photos Tell Story of New Haven in Hurricane and Flood

To recount officially its now-legendary experiences in the New England hurricane of September 21 and the floods which followed, the New York, New Haven & Hartford has prepared a 50-page booklet entitled "The Devastation and Restoration of New England's Vital Life-Line," for issuance to its patrons. Made up almost entirely of photographs of scenes of destruction and rehabilitation taken "on the spot"

and reproduced in large dimensions (many of the "shots" are as large as 9 in. by 6 in.), the booklet is divided into two parts. One concerns the evidences of destruction itself,—75 miles of track lifted from its roadbed, twisted, washed out or covered by debris; 31 bridges and 200 culverts destroyed; lines blockaded by fallen trees and poles; over 5,000,000 ft. of telephone and signal wires tangled "in a jumbled mass of wreckage;" station sheds demolished and cars and yards submerged by tidal wave and flood. The other part throws light on the big job of restoring the road to operation and, by means of illustrations of various track and bridge crews, of rip-rap underpinning and re-balling operations, seeks to give a broad picture of the activities of 5,000 men who worked day and night for weeks in three shifts to restore the "life-line."

In the middle of the booklet appears a map of the New Haven system on which is marked the course of the hurricane and the locations of all track or bridge wash-outs. A typical caption underlying several complementary photographs of rehabilitation job runs: "Man-power alone can right these twisted rails . . . foot by foot they must be jacked up and underpinned with rip-rap . . . followed by tons of fill . . . a procedure more difficult than laying new track."

### B. & O. Explains Interest Plan to Employees

In order to acquaint its employees with the general features of its current plan for modification of interest charges and



Typical "Shot" of Hurricane Damage Appearing in the New Haven's Booklet on the New England Storm of September 21. Shows Undermined Roadbed of the Shore Line at Stonington, Conn.



maturities, the Baltimore & Ohio has published in its employees' magazine a three-page directory of the plan in the form of questions and answers and a list of officers equipped to explain details of the plan. The questions and answers were prepared by O. S. Lewis, general freight traffic manager, at the request of G. W. Arnold, manager commercial development, who has been placed in general charge of a campaign to publicize the plan.

In general, the text of the questions and answers is brief and unadorned and special care is taken to see that only the important points are included. For example, the first question is: "What is the plan?", the answer: "The plan is a proposal of the B. & O. to those from whom it has borrowed money that temporarily they will extend the time for the payment of interest or principal beyond the date when it is due." Further questions touch upon the reasons for proposal of the plan, outstanding long term debt and guaranteed obligations of the road, amount by which it has failed to earn interest and other fixed charges, protection of security holders who assent to the plan and an analysis of what would happen if the plan is not made effective. At the close of the question and answer section there is appended a list of the railroad's officers and representatives located in the main cities in the United States who are authorized to discuss the plan with any security holder or employee.

An editorial tied in with the discussion of the plan presents reasons for employees' interest in the fate of the plan, pointing out that investors have together put up about a billion dollars net to date for the upbuilding of the railroad, which represents an average investment of more than \$25,000 for every man and woman now on the payroll. Lest any employee doubt the future stability of the Baltimore & Ohio another paragraph declares: "No B. & O. man need hang his head because of this crisis. It is due to forces largely beyond our control, and that need not permanently impair the soundness of our position."

#### J. F. Stevens to Get Hoover Medal

John F. Stevens, noted civil engineer and formerly vice-president of the Chicago, Rock Island & Pacific, the New York, New Haven & Hartford and president of the Spokane, Portland & Seattle, has been selected as the third recipient of the Hoover medal, which will be presented to him during the annual meeting of the American Society of Civil Engineers January 18-21 in New York with the following citation: "John Frank Stevens, engineer of great achievement as illustrated in his work on the Panama Canal, who, in his dealings with the Inter-Allied Forces in Siberia in the Great War, demonstrated those broader capacities for humanitarian public service beyond his calling, which have earned for him the recognition of the Hoover Medal for 1938."

Mr. Stevens, who is now a consulting engineer at Baltimore, Md., was born 85 years ago and has enjoyed a notable career as a railroad and canal construction engineer and executive. He has engaged in location work with the Denver & Rio

Grande (now Denver & Rio Grande Western), and served as assistant engineer of the Chicago, Milwaukee & St. Paul (now C. M. St. P. & P.) as division engineer of the Canadian Pacific, as principal assistant engineer in the location and construction of the Duluth, South Shore & Atlantic, and as assistant engineer of the Spokane Falls & Northern (now Great Northern). He has also held many engineering positions with the Great Northern itself. Between 1903 and 1904 he was chief engineer and vice-president of the Rock Island, leaving railroad service for two years to serve as chief engineer and chairman of the Isthmian Canal Commission in connection with the building of the Panama Canal. Between 1907 and 1909 he served as vice-president (operation) of the New York, New Haven & Hartford and in 1911 became president of the Spokane, Portland & Seattle.

In 1917, at 64, Mr. Stevens went to Siberia as chairman of a commission of railway experts to assist the provisional Russian government in operation of its railways, and during and immediately after the Russian revolution served as president of the Inter-Allied Technical Board. In 1927 he was elected president of the A. S. C. E.

#### Commuters Carol in North Station Daily Except Sunday

Commuters passing through North station in Boston, Mass., have had the opportunity of singing Christmas carols under professional direction, preparatory to boarding their trains on the homeward journey during each day of the past week. Between 5 and 5:30 p. m., song sheets were provided to those commuters who desired to pursue the muse, and Bill Elliot, the so-called "singing cop" of Hampton Beach, New Hampshire, a radio and concert star who appeared on a Major Bowes program a year or so ago, led the group in carol singing. In order that the home folks might share in the fun the commuters' carol-fest was broadcast each night over C. B. S. Station WEEI from 5:15 to 5:30 p. m. Accompaniment was provided by an electric organ played by WEEI staff organists.

While it is believed that this is the first organization of railroad commuters into carol singing "waits" in a busy passenger terminal, trans-bay commuters utilizing Southern Pacific and Key system ferry boats in San Francisco (Cal.) Bay have participated in pre-Christmas carol singing programs during their "voyages" for more than 20 years. This custom, however, we understand, will end this year by reason of substitution of train services on the San Francisco-Oakland bridge for the ferry journey.

#### Suburban Towns Fear Loss of Railroad Branch

Fearing that abandonment of the 26-mile Northern of New Jersey branch of the Erie may follow disaffirmance of the Erie's lease of the line, civic officials of the suburban towns along the route have conferred from time to time with a view to taking action, after announcements appeared in

station bulletin boards and local newspapers on December 8 to the effect that the Erie had applied to the federal district court at Cleveland, O., for permission to disaffirm its lease on the Northern tracks from Granton Junction, (North Bergen) N. J., to Nyack, N. Y.

A hearing on the application was set for December 21, but has been adjourned until January 25, 1939.

As yet no action has been taken, but a committee representing affected communities in New York and New Jersey, respectively, have been formed and proposals put forth for continuance of the line. In this connection, Mayor E. T. Lovatt of Nyack, N. Y., suggested that the communities reduce their taxes against the line to prepare the way for lowered commutation fares to attract traffic. Representatives also agreed to ask the Erie to set up a shuttle service by motor bus between the Northern tracks at North Bergen, N. J., and mid-town Manhattan, similar to that proposed recently by the trustee of the New York, Susquehanna & Western and pending approval by the Interstate Commerce Commission.

The Northern of New Jersey, which was opened in October, 1859, was leased by the Erie for its corporate existence on June 1, 1899, at a rental of 4 per cent on \$1,000,000 outstanding capital stock, interest on \$861,000 outstanding 4½ per cent bonds, taxes, assessments and organization expenses. The Northern's income from the lease in 1937 amounted to \$80,190.

#### Caskie to Be Commission's 1939 Chairman

The rotating Interstate Commerce Commission chairmanship will become the assignment of Commissioner Marion M. Caskie for the year 1939, according to an announcement issued by I. C. C. Secretary W. P. Bartel on December 19. Commissioner Caskie, who has been a member of the commission since August, 1935, will succeed Commissioner Walter M. W. Splawn in the chairmanship.

The new chairman comes from Montgomery, Ala. He was born in Virginia on July 29, 1890, and was educated in that state. At the age of 16 he entered the service of the Southern as an accountant, where he remained for five years. Thereafter he was manager of the traffic departments of a number of industrial and commercial organizations, during which time he was president, chairman of the executive committee, and executive secretary of the Southern Traffic League; regional vice-president and member of the executive committee of the National Industrial Traffic League; and from 1931 to 1933 he was general manager of the State Docks & Terminal Railway at Mobile, Ala. For two years he was southern traffic assistant to the federal coordinator of transportation, and at the time of his appointment to the commission was an executive of a steamship company.

The terms of two members of the commission expire on December 31; they are Commissioners Balthasar H. Meyer and William E. Lee. Commissioner Lee, who has been a member of Division 5, the Motor Carrier Division, has been endorsed

for reappointment by the American Trucking Associations, Inc., executive committee. It is understood that Commissioner Meyer, who is 72 years of age, may not receive another term. Last year when the terms of Commissioners Frank McManamy and Charles D. Mahaffie, expired President Roosevelt reappointed the latter but as yet has taken no action with respect to the former. Such inaction has left Mr. McManamy on the commission under that provision of the Interstate Commerce Act which stipulates that a commissioner whose term has expired shall continue to serve until his successor qualifies.

### Club Meetings

The Car Department Association of St. Louis will hold its next meeting on January 17 at 8 p. m., in the Hotel Mayfair, St. Louis, Mo. Victor Willoughby, vice-president, American Car & Foundry Co., will present a paper entitled "Refrigeration in Transit" which will be illustrated with lantern slides. A dinner will precede the meeting at 6:15 p. m.

The Northwest Car Men's Association will hold its next meeting on January 9, at 1957 University avenue, St. Paul, Minn. There will be a discussion on changes in new A. A. R. rules.

The Indianapolis Car Inspection Association will hold its next meeting on January 9 at the Severin hotel, Indianapolis, Ind.

### Commission Gets G. M. & N.-M. & O. Merger Plan

A plan of consolidation which would merge the Mobile & Ohio and the Gulf, Mobile & Northern into one company, and which, in the opinion of the roads' managements, would result in increased annual earnings of \$1,500,000, was filed with the Interstate Commerce Commission on December 21. The merger plan contemplates the creation of a new company the Gulf, Mobile & Ohio, which would acquire the properties of the M. & O., now in receivership, and unify operation of that property with the G. M. & N., and the New Orleans Great Northern, now under lease to the G. M. & N.

The plan filed with the commission, contemplates an initial fixed interest-bearing debt of the new company and of the N. O. G. N. of \$31,870,000, with annual fixed interest requirements of \$1,399,920. This figure includes the existing debt of the G. M. & N. and the N. O. G. N. of \$15,467,000 and also \$1,500,000 to be borrowed for rehabilitation and additions and betterments. Also, there would be outstanding \$6,026,000 of five per cent income bonds, due in 75 years, with a maximum interest charge of \$301,000 a year, payable only if earned. There would also be outstanding 305,750 shares of no par value \$5 preferred stock and 609,847 shares of no par common stock.

The fixed interest obligations of the new company would include a \$9,500,000 Reconstruction Finance Corporation 10 year four per cent loan, secured by \$10,556,000 of first mortgage four per cent bonds series A; \$5,913,700 first mortgage four per cent bonds, series B, 35 year bonds; \$990,000

of M. & O. equipment trust certificates; \$9,986,000 of G. M. & N. first mortgage bonds; \$590,000 of three per cent secured G. M. & N. serial notes; and \$1,152,000 of G. M. & N. equipment trust certificates. First mortgage bonds of the N. O. G. N., totaling \$3,739,000 would also be outstanding along with income bonds and stocks of the new company.

Under the proposed merger plan, each holder of a \$1,000 M. & O. refunding and improvement 4½ per cent bond would receive \$300 of first mortgage, series B 4s, \$200 of general mortgage income bonds, 6¼ shares of preferred stock and 12½ shares of new common stock. M. & O. five per cent secured notes would receive \$350 of first mortgage series B bonds, \$250 in income bonds, 7¾ shares of preferred stock and 15½ shares of common stock. Montgomery Division bonds would receive \$500 in income bonds, 6½ shares of preferred and 13 shares of common stock. Mobile & Bay Shore bonds would get five shares of preferred and 16½ shares of common stock.

Each share of G. M. & N. preferred stock, including 63½ per cent accumulated dividends to April 1, 1939, would receive one share of new preferred stock and one and one-half shares of common stock. G. M. & N. common stockholders would receive three-quarters of one share of new common stock for each present share. Each \$100 N. O. G. N. income debenture, including accumulated interest of 26½ per cent to April 1, 1939, would receive one share of new preferred and three-quarters of a share of new common stock. N. O. G. N. common stock would get one-quarter of a share of new common stock.

Of the \$9,500,000 to be borrowed from the RFC, \$7,295,000 would be used to acquire from the Southern \$7,839,500 of M. & O. general mortgage bonds, \$97,006 to purchase M. & O. general mortgage bonds held by interests other than the Southern, and \$2,107,529 for rehabilitation, additions, betterments, and reorganization expenses.

The new company would have a board of directors of 15 members, 12 to be chosen by the G. M. & N. and three by the reorganization committee of the M. & O.

The new company would operate the N. O. G. N. property under the present lease to the G. M. & N., the "contingent rental" payable being based upon dividends paid upon the stock of the new company issuable to the G. M. & N. stockholders instead of upon dividends paid upon G. M. & N. stock as is now provided.

Accompanying the merger plan was an application of the G. M. & O. and the G. M. & N. to issue \$17,969,700 of first mortgage bonds, \$6,025,800 of general mortgage bonds, 305,750 shares of no par \$5 preferred stock and 609,847 shares of no par common stock; to assume the debts of the G. M. & N.; to assume liability for certain equipment trust obligations of the M. & O.; to pledge nominally issued first mortgage bonds of the G. M. & N. in the amount of \$2,040,000 and \$700,000 of N. O. G. N. first mortgage bonds. These companies have also asked for authority to merge the two companies into the G. M. & O.

Also accompanying the consolidation plan was an application for an RFC loan

of \$9,500,000, to run for 10 years. The proceeds would be used to expedite the consolidation.

### Labor Defending Pension Plan Against Proposed Changes

The standard railway labor organizations are evidently out to defend the railroad pension plan against movements for more liberal benefits which might impair the fund as set up at present. In the December 20 issue of "Labor" appeared the first of a series of editorials designed to answer letters "from various parts of the country urging amendments to the Railroad Retirement Act"; and to give railroad workers "certain information" in order that they may "give intelligent consideration to these amendments."

The editorial goes on to give reassurances as to the present condition of the retirement fund, but to emphasize that such adequacy "does not mean that the fund would be sufficient if liberalizing amendments were adopted." Thus it is suggested that railroad workers "disregard the extravagant promises of those who assure them that, in return for monthly dues, they will promote amendments of various kinds." Among the amendments being promoted are proposals to make retirement at 65 years of age compulsory, to pay a full annuity after 30 years of service regardless of age, and to pay widow pensions.

While giving its reassurances as to the present fund's being "as strong as Gibraltar," the "Labor" editorial does point out that the fund is at present somewhat short of the amount anticipated from the original actuarial estimates. In this connection, however, the Railroad Retirement Board takes the position that the present tax is adequate to carry the system as it is now set up; it cannot yet say how certain unanticipated factors will permanently affect the fund. Among these factors was the falling off in railroad payrolls. The estimates had been based on a railroad payroll of \$2,200,000,000; the drop below that figure cut payments into the fund for the year ended June 30, 1938, by about \$18,000,000 under what had been anticipated. Another factor was the depression, bringing pressure to retire on men who might under other conditions continue working. Also, the death rates have been lower than was anticipated, a factor which "Labor" calls a "gratifying by-product" of the pension system which has left the men without worry "about what would happen to them in their old age."

The actuaries had estimated a death rate of about 9 or 10 per 1,000 per month among annuitants and of 12 per 1,000 among pensioners, i. e. those taken over from former railroad pension systems. Actually the monthly mortality rate among annuitants has been about seven per 1,000; that among pensioners, about eight per 1,000.

"Labor" estimates that all of the foregoing (including the above-mentioned tax loss of \$18,000,000) cost the fund "approximately \$25,000,000 during the last year;" but it notes that the October figures showed "a safe margin between income and outgo." Next it quotes George M. Harrison, chairman of the Railway Labor



Executives' Association to the effect that the retirement act "can only be liberalized to the extent that the employees and the carriers, each contributing on a 50-50 basis, are willing to meet the increased cost."

## Truckers Want I.C.C. for Boss

(Continued from page 922)

argument, Commissioner Aitchison wanted to know why the case hadn't been taken to court and a decision obtained under the Declaratory Judgments Act. Mr. Beall agreed that it could have been disposed of in that manner, but argued that there was no need to because of the fact that, in his opinion, it was clear that the commission was given exclusive jurisdiction over all motor carrier employees.

Mr. Beall objected to the theory advanced in some quarters that the commission should have jurisdiction over the operating employees and the Wage and Hour Administrator should control the non-operating employees, pointing out that in many trucking companies one man does both types of work with the result that it would be virtually impossible for the employer to keep track of the time spent at each job.

E. S. Brashears, appearing as counsel for the Household Goods Carriers Bureau, warned that if the commission gives away any of its power, it will soon go to Congress and ask for it back. He urged the commission to take the position of Mr. Beall.

Others appearing in support of Mr. Beall's position included Carl Phinney, representing the North East Texas Motor Lines, Inc.; Reagan Sayers of the Sproles Motor Freight Line; Howell Ellis of Transamerican Freight Lines, Inc.; J. R. Turney, Jr., of the National Bus Traffic Association; and Ivan Bowen of the National Association of Bus Operators.

A slightly different interpretation of the commission's power came from Robert M. Davitt, counsel for the New York State Motor Truck Association, who contended that the commission's power does not extend beyond drivers. Commissioner Aitchison asked whether he included dispatchers. Mr. Davitt would, if the commission found that they had a direct connection with safety of operation.

Arguing labor's case in opposition to the position taken by the truck and bus operators was Joseph Padway, general counsel for the American Federation of Labor. Mr. Padway thought that the commission could control only those employees directly connected with truck and bus transportation. He would have the commission regulate the hours of truck drivers, but permit the Wages and Hours Administrator to regulate all other employees of the industry.

Commissioner Rogers wanted to know whether one law had certain advantage accruing to labor which the other did not have. Labor advocate Padway said that this was definitely true. He then pointed out that the Fair Labor Standards Act sets a lower maximum hour standard and

has a minimum wage scale which the Motor Carrier Act does not have.

David Kaplan, representing the various machinists' unions in the trucking industry, urged the commission to permit the machinists to come under the Fair Labor Standards Act. He pointed out that in view of the fact that the commission had already declined to fix maximum hours for them, it was only fair that it permit them to go under the other law. He accused the truck operators of trying to evade regulation of machinists by now asking for I. C. C. supervision, which would be, presumably, less stringent than that under the Fair Labor Standards Act. He concluded by asking the commission not to set itself up as a "refuge" for those who sought to evade regulation.

O. D. Zimring, another A. F. of L. counsel, representing the bus and truck drivers, asked the commission to adopt the standard of the Fair Labor Standards Act if it decided that it had jurisdiction over all operating and non-operating employees of the trucking industry. He conceded the commission could set maximum hours for the truck drivers.

## Charges Halved in Erie's Plan

(Continued from page 922)

pating stock. Unsecured creditors, not entitled to a preference, would receive 100 per cent in second preferred participating stock and holders of present Erie first preferred, second preferred and common stock would receive one share of new common stock for each share of present stock.

The plan includes a proposal for the issuance of collateral trust notes, not to exceed \$21,500,000 in principal amount, for the purpose of raising the cash required in connection with reorganization. Creation of a "capital fund" to provide, among other things, for additions and betterments to the property, is also contemplated.

The debtor's is the second reorganization plan to be filed and follows a plan filed last October with the Interstate Commerce Commission by a group of holders of refunding and improvement mortgage bonds of the road, which was summarized in the *Railway Age* for October 22, page 611. A comparison between the two plans is drawn in a statement issued by the Erie on December 20 as follows: "The group plan proposes, without specific recommendations, that the questions of corporate simplification and disaffirmance of leases be dealt with by a reorganization committee. The proposals for the issuance of new securities under the group plan would effect a slightly greater reduction in debt than would be brought about under the Company's proposed plan, but the ratio of debt to total capitalization would be considerably higher under the former than under the latter. Under the group proposals the deductions for capital fund purposes would be made after payment of income bond interest, whereas under the debtor's proposed plan, such deduction would be made prior

to the payment of such interest. The group has proposed a single issue of preferred stock as against the two issues proposed by the debtor, and under the former's proposal the present equity interest would be recognized only through the issuance of warrants to purchase new common stock, the proceeds from the exercise of such warrants going to the holders of present refunding and improvement mortgage bonds and unsecured creditors."

Hearings on reorganization of the road are scheduled by the I. C. C. for January 4, 1939, before Commissioner Porter.

## Views Vary on Merger in N. W.

(Continued from page 923)

2,822 men would be thrown out of employment and that this would take place over a period of three or four years. He thought that they could be taken care of under the terms of the Washington Agreement which makes provision for such cases. He also observed that the present low figure of employment on both roads would make this an ideal time for consolidation.

During Mr. Johnston's discussion of the plan, Commissioner Porter asked him whether or not his committees had considered the question of loss of traffic from interchange if the roads were merged. He then referred specifically to the arrangement which the Union Pacific now has with the North Western at Omaha, Nebr., and wondered whether or not the U. P. would be willing to continue it with the merged system. Mr. Johnston did not know, but thought that that problem would have to be worked out after the roads were merged as there would be no way of ascertaining how the Union Pacific would feel about such a merger.

Samuel H. Cady, general counsel for the Chicago & North Western, appeared in support of the stockholders' motion for a reopening of the case, asserting that something must be done soon, or the country will be faced with government ownership of the railroads. He began his presentation by saying that he believed the economies resulting from consolidation would be much greater than those the studies had disclosed. According to Mr. Cady, 1,108 miles might be abandoned. He also was of the opinion that a 25 per cent reduction in administrative expenses could be achieved by consolidation.

In concluding his plea on behalf of the management of the North Western for a reopening of his road's reorganization case, Mr. Cady contended that some independent man, not connected with either railroad, should head the consolidation study which would have to be made. He told the commission that it would take six to eight months and \$150,000 to \$200,000 for a partial study of the two roads and the possibilities of their merger.

Characterizing the stockholders' consolidation plan as "fantastic and grotesque" and a "stalemate of reorganization," Kenneth F. Burgess, representing the insurance company holders of bonds of the two



companies, told the commission that his clients strongly opposed the reopening of the two cases, believing that it would be easier to consolidate after reorganization had brought about a simpler financial structure. Fred N. Oliver, counsel for the Mutual Savings Banks, said that his group did not believe the consolidation plan to be either practical or feasible. He warned the commission that any further delay in reorganization of the two roads simply meant the piling up of more accumulated unpaid interest on the bonds outstanding.

Robert T. Swaine, counsel for the Milwaukee stockholders, favored the reopening of the two cases, urging the commission not to fear political reprisals from "sticking its neck out," but to do a real job of consolidation, regardless of how long it might take.

J. G. Luhrsen, speaking for the Railway Labor Executives Association, told the commission that railway labor would insist that adequate provision be made in any consolidation plan for those men thrown out of employment.

The commission took the case under advisement and should shortly decide whether or not it will reopen the two cases so that testimony on a consolidation plan could be presented.

## Blames Rail Ills on Trade Shift

(Continued from page 923)

nage: And, while such a decline has reduced the total traffic of all forms of transportation, at the same time, the change in the character of haul from one of bulky shipments over long distances to one of finished products distributed locally has favored the motor carrier to the disadvantage of the railroad.

Mr. Truesdell is of the opinion that all transport must gear itself to the new dispensation. In this connection, he urges that the railroads, which are hardest hit by decentralization, co-ordinate and consolidate useful trackage and abandon superfluous lines, and, at the same time go into the motor carrier business when expedient. He recognizes, however, that "as things now stand the Interstate Commerce Commission has interpreted the Motor Carrier Act of 1935 so rigidly as to prevent complete co-ordinate use of highway vehicles by the rail carriers. . . . Certainly if we are to have consolidation of parallel rail activities for economy, there should be nothing to prevent consolidation of parallel truck and rail-truck activities for economy. Truck routes as now set up do not follow rail lines exactly. To deny a railroad-acquired truck line the right to serve an off-rail point on its route is to increase the cost of transportation service to that point and create an unnatural and wasteful competition of cross routes. Rail lines must be permitted to acquire and use truck and bus service with a minimum of restrictive limitations."

The author also sounded a plea for understanding by railroad labor, which appears in a "box" herewith.

## Equipment and Supplies

### LOCOMOTIVES

THE ATCHISON, TOPEKA & SANTA FE has authorized the purchase of 30 Diesel electric switching locomotives, some of 600 h.p. and some of 900 h.p., at an estimated cost of more than \$2,250,000. The purchase of additional equipment will be considered later.

### FREIGHT CARS

THE BOARD OF TRANSPORTATION, CITY OF NEW YORK, has ordered one crane car from the Magor Car Corporation.

THE UNITED STATES NAVY DEPARTMENT BUREAU OF SUPPLIES AND ACCOUNTS, has ordered 39 flat cars, of 50-tons capacity, from the Magor Car Corporation.

THE PENNSYLVANIA has ordered 1,045 tons of sheets from the Carnegie-Illinois Steel Corporation. The railroad will use the steel for general repairs and maintenance of equipment at its Altoona, Pa., shops.

THE NORFOLK & WESTERN has placed orders for 600 steel box cars, awarding 500 standard 40-ft. cars to the Pressed Steel Car Company and 100 cars of 50-ft. length to the Greenville Steel Car Company. The railroad will build 35 covered hopper cars in its own shops. Inquiry for the box cars was reported in the *Railway Age* of November 26.

### IRON AND STEEL

THE ILLINOIS CENTRAL has placed an order for 3,500 tons of rails, for delivery in the first quarter of 1939 with the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

THE NEW YORK, NEW HAVEN & HARTFORD trustees have applied to the United States District Court for authority to purchase 15,649 tons of new rails to be laid in 1939, at an estimated expenditure, including the necessary fastenings, of more than \$1,000,000.

THE PENNSYLVANIA has placed orders for 50,000 tons of rail, including 152-lb. and 131-lb. sections as follows: Carnegie-Illinois Steel Company, 25,000 tons, Bethlehem Steel Company, 22,000 tons and the Inland Steel Company, 3,000 tons.

THE CHICAGO GREAT WESTERN has ordered 4,200 tons of rails and 2,800 tons of fastenings, placing 3,500 tons of rails with Carnegie-Illinois Steel Corporation and 700 tons with the Inland Steel Company. The contracts for fastenings were divided among several firms.

### SIGNALING

UNION PACIFIC.—Sealed proposals will be received at the office of E. L. Fries, general purchasing agent, Omaha, Neb.,

until 12:00 noon (c.s.t.), January 12, 1939, for furnishing the necessary materials for four railroad grade crossing protective devices to be installed under the federal grade crossing program in the State of Wyoming.

PIEDMONT & NORTHERN.—Bids will be received at the office of this road at Charlotte, N. C., until 12:00 o'clock noon (e.s.t.), January 16, 1939, for complete installation, materials and labor of the following highway crossing signals: At Honea Path, S. C., two at Greer, one at Greenville, one near Greenville, and one at Shoals Junction. W. T. Gill, vice-president and general manager, Charlotte.

## Supply Trade

S. A. Crabtree and W. J. Jack have been appointed assistant district sales managers of the Republic Steel Corporation in the Chicago territory.

R. H. McGredy, for many years a sales executive of the Harnischfeger Corporation, Milwaukee, Wis., has been appointed manager of the Harnischfeger Washington, D. C., office, where he will direct the sales of the machines in the P&H line.

Charles E. Brinley, acting vice-president with executive powers, of the Baldwin Locomotive Works, has been elected president to fill the vacancy caused by the resignation of George H. Houston last August. William H. Harman, vice-president and general manager of the Baldwin-Southwark Corp., has been elected vice-president in charge of sales and the resignation of Robert S. Binkerd as vice-president and director of sales has been accepted by the board of directors, effective December 31.

Kenneth J. Tobin, assistant vice-president for the Camel Sales Company, Chicago, has been appointed vice-president,



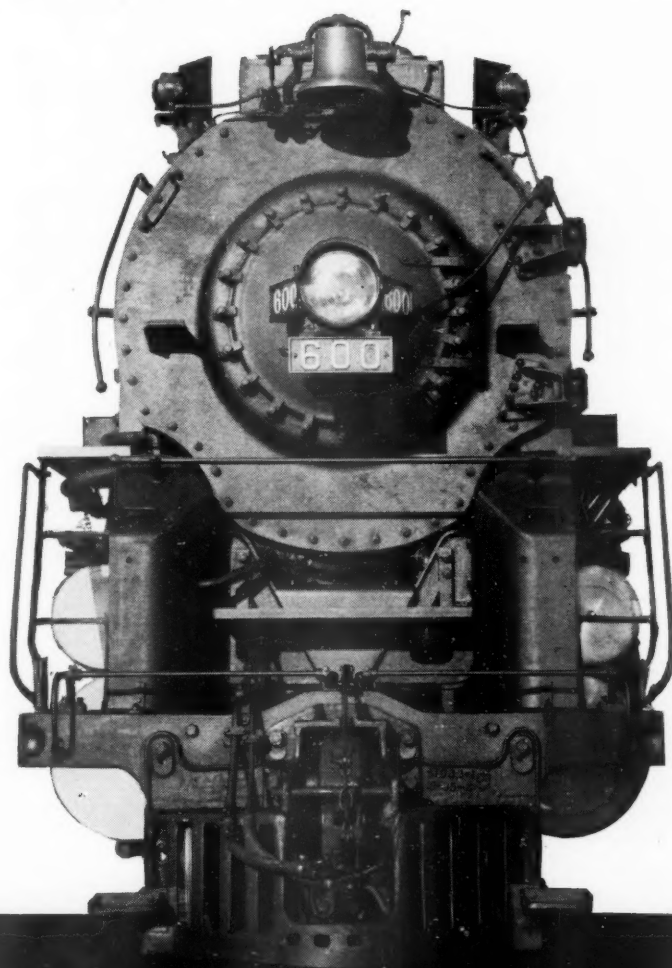
Kenneth J. Tobin

and A. G. Dohm, assistant vice-president has also been appointed vice-president. L. F. Duffy has been appointed assistant vice-president. Mr. Tobin was born in Chicago

Continued on next left-hand page

# MODERN POWER

## Is the Key to Net Profits



Higher mathematics are not needed to determine the advantages of modern power. » » » Modern power uses less coal per 1,000 ton-miles, it moves more tons per train and it moves capacity trains at faster average speeds between terminals. » » » It makes greater use of every

railroad facility. It gets its train over the road so the following train can use the rails. » » » It is more economical to operate and costs less to maintain. » » » Modern power, in every case, shows increased net earnings and yields a handsome return on the investment.



LIMA LOCOMOTIVE WORKS

INCORPORATED, LIMA, OHIO

on March 21, 1898, and entered the railway supply business on June 1, 1924, resigning the position of efficiency engineer for the International Harvester Company on May 30, 1924, to accept the position of mechanical engineer with the Camel Company, predecessor of the present Camel Sales Company. He remained in that position until January 2, 1930, when he was promoted to assistant to vice-president. In November, 1930, he was advanced to assistant vice-president, remaining in that capacity until his recent promotion to vice-president.

**Alan E. Ashcraft**, vice-president of **Fairbanks Morse & Company**, with headquarters at Beloit, Wis., has been appointed, effective January 1, vice-president in charge of all the company's operations in seven plants, with headquarters at Chicago.

## OBITUARY

**William J. Walsh**, who retired as vice-president of the Galena Signal Oil Company, with headquarters in Chicago, several years ago, died at Lakewood, Ohio, on November 10.

**Roswell P. Cooley**, who served as eastern manager of the Vapor Car Heating Company, New York, until about 1934, and had been for many years in the railway supply business, died suddenly on December 21 in the Embassy Hotel, where he made his home in New York City. Since leaving the service of the Vapor Car Heating Company, Mr. Cooley served as a member of the firm of The Hall-Keiles Travel Company, Inc., New York City, and also represented American Railway Products Company. Mr. Cooley's first experience with railroading was with the Rutland in the clerical department, later becoming chief clerk in the motive power department. He subsequently went with the Pullman Company where he was promoted to mechanical inspector, after which he joined the Vapor Car Heating Company. After serving with that company as sales representative in the Middle West, he went to New York as eastern manager, leaving that position to go with The Hall-Keiles Travel Company.

## Financial

**ALABAMA CENTRAL.—Abandonment.**—This company has asked the Interstate Commerce Commission for authority to abandon its entire line extending from Booth, Ala., to Forrester, 5.3 miles.

**BOSTON & MAINE.—Abandonment.**—This company has asked the Interstate Commerce Commission for authority to abandon a portion of its Milford branch extending from Pepperell Station, Mass., to South Milford, N. H., 13 miles.

**CHESAPEAKE & OHIO.—Bonds.**—The Interstate Commerce Commission, Division 4, has authorized this company to (1) issue \$30,000,000 of refunding and improvement

mortgage 3½ per cent bonds, to be sold at not less than par and accrued interest and the proceeds applied to the purchase and payment of maturing bonds, and (2) to issue and pledge under the refunding and improvement mortgage \$30,000,000 of general mortgage 4½ per cent gold bonds of 1892.

**CHICAGO & ILLINOIS MIDLAND.—Notes.**—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$750,000 of promissory notes, to be delivered at par to the Commonwealth Edison Company to evidence a like amount of indebtedness for advances made and to be made by that company for capital purposes. The notes will bear interest at the rate of five per cent, and will mature December 1, 1948.

**CHICAGO, BURLINGTON, & QUINCY.—Abandonment.**—The Interstate Commerce Commission, Division 4, has authorized this road to abandon its 5.64-mile line from Shenandoah, Iowa, to Norwich.

**CHICAGO, ROCK ISLAND & PACIFIC.—Abandonment.**—The Interstate Commerce Commission, Division 4, has authorized the trustees to abandon a branch line extending from Bridgeport, Okla., in a general southerly direction to Anadarko, 37.5 miles. Commissioner Porter dissented, saying that "It seems to me the injury which would result to shippers from abandonment of this branch would be substantially greater than the harm, if any, to the applicant if this application were denied."

**CLINTON, DAVENPORT & MUSCATINE.—Abandonment.**—This interurban electric road has applied to the Interstate Commerce Commission for authority to abandon its line between Davenport, Iowa, and Clinton, 36.4 miles of main line and 6.3 miles of sidings. As noted in the *Railway Age* of November 12, the Chicago, Rock Island & Pacific's trustees have applied to the I. C. C. for authority to acquire a 23.9-mile segment of the C., D. & M. between Davenport and Shafton, Iowa.

**DELAWARE, LACKAWANNA & WESTERN.—Abandonment.**—The Interstate Commerce Commission, Division 4, has authorized this company to abandon its Pancoast branch extending from a connection with the applicant's Winton branch at Powder Mill, Pa., in a southwesterly direction to the former Pancoast colliery, 2.8 miles.

**ELGIN, JOLIET & EASTERN.—Merger and Issuance of Securities.**—The Interstate Commerce Commission, Division 4, has authorized the merger of the properties of the Elgin, Joliet & Eastern, the Joliet & Blue Island, and the Chicago, Lake Shore & Eastern into the Elgin, Joliet & Eastern, for ownership, management, and operation. The commission has also authorized this company to (a) issue \$9,100,000 of common capital stock consisting of 91,000 shares of a par value of \$100 a share, of which 90,000 shares are to be exchanged for a like number of the present shares of capital stock of the Chicago, Lake Shore & Eastern, and 1,000 shares are to be exchanged for a like number of present shares of the Joliet & Blue Island, and (b) assume liability for \$9,000,000 of 4½ per cent first mortgage

gold bonds of the Chicago, Lake Shore & Eastern.

**GULF, MOBILE & NORTHERN-MOBILE & OHIO.—Merger.**—The details of the merger plan of these two roads are given elsewhere in the news section.

**KANSAS CITY SOUTHERN.—Merger.**—Stockholders of the Kansas City Southern at a meeting at Kansas City on December 15, approved the merger of that road with the Louisiana and Arkansas under the former's name. The merger had already been approved by stockholders of the L. & A., and the action on December 15 was the final step prior to a hearing by the Interstate Commerce Commission in Washington on January 23. The merger will be effected by an exchange of stock.

**LOUISIANA & ARKANSAS.—R. F. C. Loan Approved.**—The Interstate Commerce Commission, Division 4, has approved a loan to this company by the Reconstruction Finance Corporation of \$350,000, the proceeds to be used for maintenance of the property. The loan will run for three years, and as collateral, the company will pledge \$650,000 of six per cent first mortgage bonds, due January 1, 1954 of the Louisiana, Arkansas & Texas.

Division 4, later authorized the issuance of the 2.5 per cent, three-year promissory note or notes for \$350,000, in connection with this transaction.

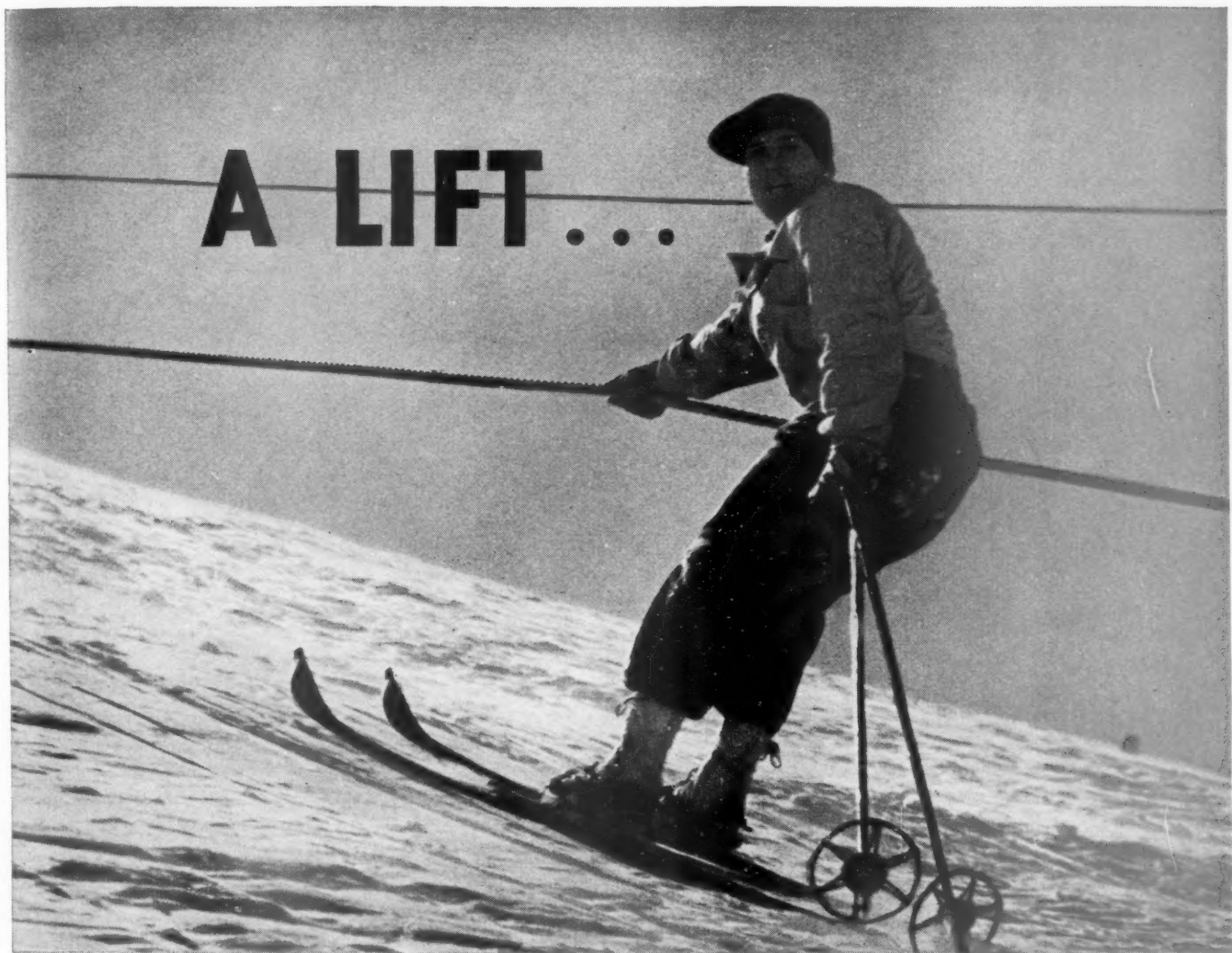
**LOUISIANA & ARKANSAS-LOUISIANA, ARKANSAS & TEXAS.—Rehearing Asked.**—These companies have asked the Interstate Commerce Commission to grant them a rehearing before the full commission in the case of their application to acquire control of the L. A. & T.; to merge the two properties; and to issue \$850,000 of first mortgage five per cent bonds. The roads ask the commission to overrule Division 4's conditions which would force the L. & A. to take care of those employees to be displaced by the merger.

**MAINE CENTRAL.—Operation.**—The Interstate Commerce Commission, Division 4, has authorized this company to operate, under trackage rights, over a line of the Boston & Maine between Coos Junction, N. H., and Groveton, 8.9 miles.

**MISSOURI-KANSAS-TEXAS.—RFC Loan Approved.**—The Interstate Commerce Commission, has approved a loan to this company by the Reconstruction Finance Corporation of \$2,824,000, the proceeds to be used to meet bond interest, taxes and equipment installments falling due between January 1 and April 1, 1939. As collateral for the loan, the road will pledge \$8,250,000 of its prior lien five per cent bonds.

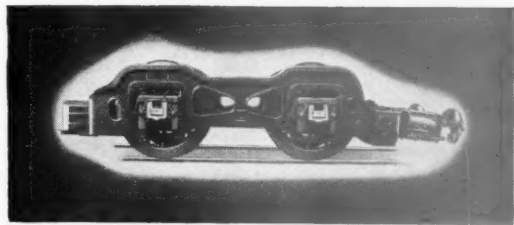
**NEW YORK CENTRAL.—Bonds of the Toledo & Ohio Central.**—The Toledo & Ohio Central has asked the Interstate Commerce Commission for authority to issue and the New York Central has asked for authority to assume the liability for \$2,067,000 of refunding and improvement mortgage bonds, series A, of the Toledo & Ohio Central. The bonds will be dated June 1, 1935 and will mature June 1, 1960. They will bear interest at the rate of 3¾ per cent and the proceeds will be used to retire





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# FRANKLIN RAILWAY SUPPLY COMPANY, INC.

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a like amount of Kanawha & West Virginia five per cent 50 year mortgage gold bonds, due July 1, 1955, which were called for redemption on July 1, 1937.

**PENNSYLVANIA.—Abandonment.**—This company has asked the Interstate Commerce Commission for authority to abandon 7.2 miles of branch lines in Center and Clearfield Counties, Ind., and Somerset County, Pa.

**PENNSYLVANIA.—Bonds of Raritan River.**—The Raritan River has applied to the Interstate Commerce Commission for authority to extend the maturity date of its first mortgage 5 per cent bonds from January 1, 1939, to January 1, 1959, with a reduction in the interest rate to 4¼ per cent. Of the \$400,000 issue, it is proposed to deliver \$359,000 of the bonds as extended to the Pennsylvania, while the remaining \$41,000 are in the applicant's treasury.

**RAILWAY EXPRESS AGENCY.—Notes.**—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$16,000,000 of serial notes, the proceeds to be used to redeem a like amount of its outstanding five per cent bonds. The notes will mature in 20 equal semi-annual installments of \$800,000, beginning June 1, 1939, and ending December 1, 1948.

On December 22 Morgan Stanley & Co., Inc., and Kuhn, Loeb & Co., New York, formally offered for sale the above issue of serial notes. The notes, priced at 100 carry rates from ¾ of one per cent to 2½ per cent.

**TEXAS MEXICAN.—Abandonment of Operation.**—This company has asked the Interstate Commerce Commission for authority to abandon operation over the tracks of the San Diego & Gulf from Byram, Tex., to Palangana, 15,000 ft.

**TONOPAH & TIDEWATER.—Abandonment of Operation.**—This company has asked the Interstate Commerce Commission for authority to discontinue both freight and passenger operation from Crucero, Calif., to Beatty, Nev., 143.4 miles.

### Average Prices of Stocks and Bonds

	Dec. 20	Last week	Last year
Average price of 20 representative railway stocks..	30.46	29.79	33.14
Average price of 20 representative railway bonds..	59.96	59.98	68.48

### Dividends Declared

Albany & Susquehanna.—\$1.25, Extra, payable January 14 to holders of record December 21.

Allegheny & Western.—\$3.00, semi-annually, payable January 1 to holders of record December 20.

Canada Southern.—\$1.50, semi-annually, payable February 1 to holders of record December 27.

Carolina, Clinchfield & Ohio.—\$1.25, quarterly, payable January 2 to holders of record January 10.

Cleveland, Cincinnati, Chicago & St. Louis.—\$5.00, semi-annually; Preferred, \$1.25, quarterly, both payable January 31 to holders of record January 21.

Mahoning Coal R. R.—\$10.00, payable December 29 to holders of record December 23; Preferred, 1½ per cent, semi-annually, payable January 3 to holders of record December 23.

Providence & Worcester.—\$1.25, payable December 22 to holders of record December 14.

Richmond, Fredericksburg & Potomac.—\$1.00, payable December 21 to holders of record December 17.

Virginian.—\$2.00, payable December 27 to holders of record December 17.

Wheeling & Lake Erie.—5½ Per Cent Preferred, \$1.38, payable December 28 to holders of record December 27.

## Construction

**ST. LOUIS-SAN FRANCISCO.**—A contract has been awarded by the Grand River Dam Authority, Vinita, Okla., but has not yet been approved by the Public Works Administration, amounting to \$504,248, to O. J. Pharaoh, Henryetta, Okla., for the construction complete of 4½ miles of relocated main track of the Frisco near Wyandotte, Okla., including all excavation and embankment, rip-rap, culverts and bridges, track and fastenings and chatt ballast. The work to be done by the railroad includes; raise and relign track to connect with new track at each end, move and build 4,265 ft. of passing track and 1,000 ft. of stock track at Wyandotte (contractor to furnish ballast), move and rebuild stock pens at that point, move depot section houses and outbuildings, move and reconstruct automatic block signals and rearrange track circuits, move and reconstruct telegraph line, install and remove three temporary main track turnouts, and install 12 lines of 12 in. corrugated pipe in main track for drainage during construction (contractor to furnish pipe). This relocation is necessitated by the building of the Pensacola Dam on Grand River near Vinita.

**SOUTHERN PACIFIC.**—Two contracts totaling \$723,010.50 for relocation of a section of the Southern Pacific around Shasta reservoir, Central Valley project, Calif., were awarded, December 15, by Secretary of the Interior Harold L. Ickes. Of the 30 miles of relocated main line this short section, between mile-posts 287.81 and 288.725, is at the upper end near Delta, Calif. One contract, covering the construction of earthwork, two major tunnels, and the third and fourth railroad crossings of the Sacramento river, was awarded to the United Concrete Pipe Corporation of Los Angeles, Calif., the Corporation's bid of \$598,673.50 was the lowest of nine proposals received and opened by the Bureau of Reclamation at its Sacramento, Calif., office on November 14. The contract requires that the work be completed within 240 calendar days. The other contract, covering the construction of superstructures for the two Sacramento river bridges, was awarded to the American Bridge Company of Pittsburgh, Pa. Its bid of \$124,337 was lowest of 5 proposals opened at the Sacramento office on November 17. This latter contract covers the furnishing of all materials, labor and equipment, and the fabricating, erecting, and painting, of the bridges not included in the contract awarded to the United Concrete Pipe Corporation. All work must be complete within 310 calendar days. The construction of Shasta Dam requires the relocation of approximately 37 miles of the Southern Pacific's main line around the reservoir site. The new line will be 30 miles in length and will include 12 tunnels and 8 major bridges. Four crossings of the Sacramento river are necessary. Work is now in progress on a 14-mile section of the relocation between Redding, Calif., and the Pit river, and on the Sacramento river bridge, first crossing, near Redding.

## Railway Officers

### EXECUTIVE

**Hale Holden**, chairman of the Southern Pacific, with headquarters at New York, has announced his retirement in 1939, probably on July 1. Beginning the first of the year his duties will be gradually assumed by **Angus D. McDonald**, president of the road with headquarters at San Francisco, Cal., and Houston, Tex., and the position of chairman will be abolished upon Mr. Holden's retirement.

**John G. Walsh**, whose appointment as vice-president in charge of finances of the Southern Pacific at New York, effective December 1, was reported in the *Railway Age* of October 29, was born at Albany,



John G. Walsh

N. Y. Mr. Walsh was graduated from Harvard college in 1913 and entered the service of the Erie in 1917 as assistant to the vice-president in charge of financial matters. He became treasurer of the Erie in June, 1926, and was elected also secretary in May, 1937, which positions he held until December 1, when he was appointed vice-president in charge of finances of the Southern Pacific.

**Clarence G. Bowker**, vice-president and general manager of the Grand Trunk Western, president of the Detroit & Toledo Shore Line, president of the Detroit Terminal, and general manager of the Muskegon Railway & Navigation Company, with headquarters at Detroit, Mich., will retire on December 31. He will be succeeded as general manager of the Grand Trunk Western by **P. D. Fitzpatrick**, chief engineer, with headquarters at Detroit, whose promotion is announced elsewhere in these columns.

Mr. Bowker was born at Medford, N. J., on April 21, 1871, and entered railway service in May, 1888, as a telegrapher on the Philadelphia & Reading (now the Reading). He was later promoted to division operator, and in 1892, he became a telegraph operator on the Lehigh Valley, later being advanced to train dispatcher. In 1900, he went with the Grand Trunk Western as a train dispatcher, and was subse-

Continued on next left-hand page



## NO. 76 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



Photo: Courtesy E. Meerkamper, Davos-Platz

## WIESENER VIADUCT

## SWITZERLAND

Situated near the famous winter resort of Davos Platz, among some of the finest Alpine scenery, the 689 ft. Wiesener Viaduct is one of the most important structures of its kind on the Swiss railroads. Constructed entirely of stone, with unusually graceful archwork, the viaduct stands 138 ft. at the center of the 180 ft. middle span which is flanked on each side by three 66

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quently promoted to chief dispatcher, train-master, assistant superintendent and superintendent. In February, 1913, he was advanced to general superintendent of East-



**Clarence G. Bowker**

ern lines of the Grand Trunk, with headquarters at Montreal, Que., and on May 1, 1918, he was transferred to the Ontario lines, with headquarters at Toronto, Ont. Mr. Bowker was promoted to general manager of the Grand Trunk Western, with headquarters at Detroit, in August, 1925, and in 1932, he was appointed vice-president and general manager.

**W. A. Kingsland**, vice-president of the Central region of the Canadian National, with headquarters at Toronto, Ont., has retired on pension. **F. L. C. Bond**, general manager of the Central region, has been appointed vice-president and general manager, with headquarters as before at Toronto. Mr. Kingsland was born at New York and began his railroad career there in 1887. In 1900 he went to Canada as an auditor of the Great Northern and in 1904 became auditor of the Quebec & Lake St. John. When that company was taken over by the Canadian Northern he was transferred to its operating department. The portion of line under his jurisdiction served the area which was to be selected as the site of Valcartier Camp and



**W. A. Kingsland**

consequently, in 1914, Mr. Kingsland was prominently identified with Canada's early war effort. Following his service as railway officer in charge of transport at Val-

cartier, Mr. Kingsland was appointed general superintendent of the Canadian Northern, with headquarters at Montreal. In 1918, at the inception of the Canadian National system, he was promoted to assistant manager, Eastern lines. In 1920 he became general manager of those properties which comprised the Intercolonial railway and the former Canadian Northern lines in Quebec and Ontario. Upon the amalgamation of the Grand Trunk system with the Canadian National, Mr. Kingsland went to Toronto on March 1, 1923, as assistant general manager of the Central region and he took part in the reorganization which brought the various roads now comprising the Canadian National system into a single operating unit. In 1925, he was transferred to Winnipeg, Man., as general manager of the Western region and during his four years there saw the completion of the Hudson Bay railway, the purchase of the Northern Alberta railways and other important phases of the West's development. On August 1, 1929, Mr. Kingsland returned to the Central region as general manager and was subsequently promoted to the vice-



**F. L. C. Bond**

presidency of the Central region, from which position he has now retired.

Major Bond was born at Montreal and began his railway career upon graduation from the Science Faculty of McGill University in 1898 as assistant to the resident engineer, Eastern division, Grand Trunk system. In 1901 he became engineer in charge of the double track construction and from January to March of the following year gained additional experience with the New York Central as night superintendent on the construction of its underground entrance to the Grand Central Terminal. Returning in April of that year to the engineering department of the Grand Trunk, he became resident engineer until 1913, when he was made division engineer, Eastern lines. After service overseas in the 10th Battalion, Canadian Railway Troops, Major Bond was appointed chief engineer of the Grand Trunk and upon the amalgamation of the Grand Trunk with the Canadian National system, was transferred to Toronto as chief engineer of the Central region. He held that position until April, 1924, when he was transferred to Montreal as general superintendent of the Montreal district. In June, 1936, he returned to Toronto as general

manager of the Central region and now has been appointed vice-president as well as general manager of that region.

## FINANCIAL, LEGAL AND ACCOUNTING

**L. W. Cox**, assistant secretary of the Norfolk & Western, has been appointed secretary, with headquarters as before at Philadelphia, Pa., succeeding **I. W. Booth**, who will continue as vice-president in charge of finances.

## ENGINEERING AND SIGNALING

**William F. Cummings**, assistant chief engineer of the Boston & Maine and the Maine Central, was appointed acting chief engineer of these companies on December 19, with headquarters as before at Boston, Mass., to serve in the absence of **Asa H. Morrill**, chief engineer, who was off duty because of ill health. As reported elsewhere in these columns, Mr. Morrill died on December 20.

**Arthur Montzheimer**, chief engineer of the Elgin, Joliet & Eastern, with headquarters at Joliet, Ill., will retire on December 31, and **F. H. Masters**, assistant chief engineer, with the same headquarters, will succeed Mr. Montzheimer as chief engineer. **F. G. Campbell**, special engineer, will be promoted to assistant chief engineer replacing Mr. Masters.

## OPERATING

**Albert Shaw**, general superintendent of the Lehigh & Hudson River, has been appointed vice-president and general manager, with headquarters as before at Warwick, N. Y.

**P. D. Fitzpatrick**, chief engineer of the Grand Trunk Western, with headquarters at Detroit, Mich., has been promoted, effective December 31, to general manager, with the same headquarters, succeeding **Clarence G. Bowker**, who will retire on that date. Mr. Fitzpatrick was born at Springfield, Ill., and was educated at Armour Institute of Technology at Chicago. He entered railway service in 1894, on



**P. D. Fitzpatrick**

track elevation work with the Chicago & North Western, going with the Illinois Central three years later as an assistant engineer. In 1905, Mr. Fitzpatrick left

# A MERRY CHRISTMAS and

A HAPPY NEW YEAR



## THE SUPERHEATER COMPANY



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railway service to become superintendent and engineer with a general railroad construction firm and seven years later he became an assistant engineer on the construction of the Kansas City Terminal, Kansas City, Mo. In May, 1913, he returned to railroad service in the engineering department of the Grand Trunk Western to work on the construction of the terminal at Bay City, Mich., and the following October, he was appointed division engineer on the Southern New England (a project of the Central Vermont later discontinued), in charge of construction. In February, 1916, he was appointed valuation engineer of the Central Vermont, later being assigned the added duties of general roadmaster. In 1918, Mr. Fitzpatrick was advanced to chief engineer, which position he held until the spring of 1930, when he was placed in charge of the terminal project of the Canadian National at Montreal, Que., as assistant chief engineer, and upon the completion of this work in August, 1932, he was appointed chief engineer of the Grand Trunk Western, with headquarters at Detroit.

### SPECIAL

**Dr. M. B. Bishoff** has been appointed chief surgeon of the Eastern and Western Lines and chief surgeon of the Hospital Association of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., succeeding **Dr. J. P. Kaster**, deceased, and **Dr. H. W. Gootee** has been appointed assistant chief surgeon of the Hospital Association.

**S. W. Fairweather**, director of the Bureau of Economics of the Canadian National, with headquarters at Montreal, Que., has been appointed chief of research and development. Mr. Fairweather, in addition to his present duties, will initiate studies of general and local problems and conduct, in conjunction and co-operation with all departments, research work bearing upon all activities of the system. He will continue to report to the president.

**Dr. W. J. Black**, director of colonization and agriculture of the Canadian National, with headquarters at Montreal, Que.,



J. S. McGowan

has retired. **J. S. McGowan**, assistant director of the department, has been ap-

pointed director. Mr. McGowan was born in Lurgan, Northern Ireland, and went to Canada in 1913. After war service overseas with the Royal Flying Corps, he studied agriculture at the University of Manitoba, Winnipeg, Man., Canada. Following service with the extension department of the Manitoba Department of Agriculture he joined the Department of Colonization and Agriculture, Canadian National Railways, in June, 1924, and thereafter traveled extensively in the British Isles delivering lectures and offering instruction in Canadian farming methods to settlers. Two years later he returned to Canada and after service at Winnipeg and Montreal, was, on April 1, 1930, appointed assistant director, with headquarters at Montreal.

### OBITUARY

**Robert E. Fleming**, special attorney for the Louisville & Nashville, at Louisville, Ky., died at his home on November 20, following a long illness.

**Samuel W. Moore**, retired general counsel of the Kansas City Southern, died of pneumonia in Kansas City, Mo., on



Samuel W. Moore

December 11. Mr. Moore was born in Geauga County, Ohio, on January 24, 1862, and attended Adelbert College, Cleveland, Ohio, later graduating from the law school of Kansas University. He first entered railway service in 1890, as an assistant attorney in Kansas and Missouri for the Atchison, Topeka & Santa Fe. In 1899, he became associated with the Kansas City Southern as an attorney, and was later promoted to general solicitor. In 1920, he was advanced to general counsel, with headquarters at New York, and held that position until his retirement in June, 1936.

**Joseph P. Newell**, consulting engineer at Portland, Ore., and at one time division engineer of the Oregon division of the Oregon Railway & Navigation Company (part of the Union Pacific system) died at Portland on December 5.

**Asa H. Morrill**, chief engineer of the Boston & Maine and the Maine Central, with headquarters at Boston, Mass., died on December 20, at the Maine Central Hospital at Portland, Me. Mr. Morrill

was born on October 7, 1870, at Concord, N. H., and was educated at Massachusetts Institute of Technology, graduating in



Asa H. Morrill

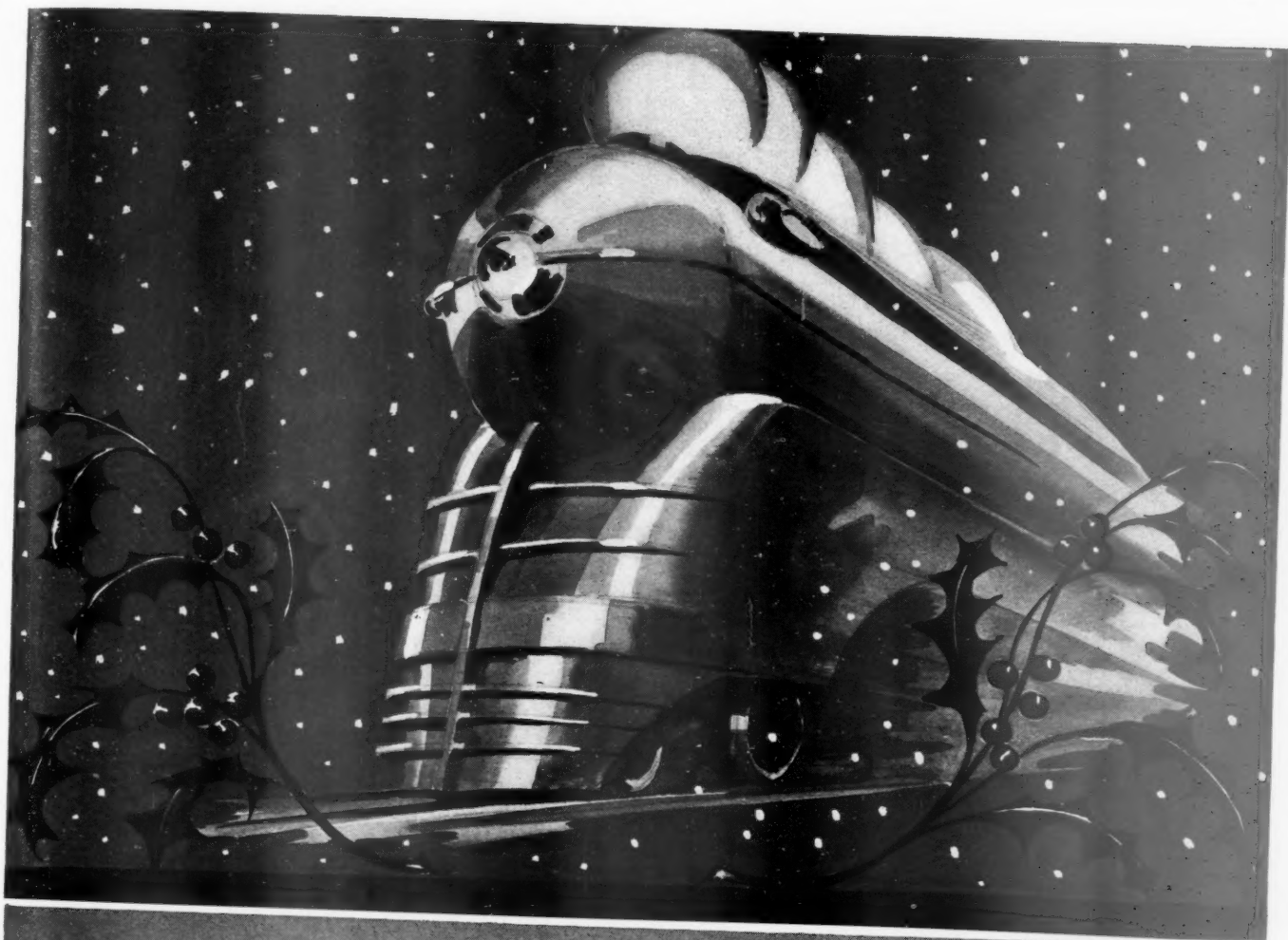
1892. Immediately after his graduation, Mr. Morrill entered railroad service as assistant engineer on the Buffalo, Rochester & Pittsburgh. Later in the same year he entered the service of the New York, New Haven & Hartford as assistant engineer, being appointed assistant roadmaster two years later. In 1898 he became associated with the contracting firm of Charles McDermitt as superintendent, but shortly re-entered the engineering department of the New Haven. In 1907, Mr. Morrill became assistant engineer of construction for the Maine Central and in 1928 he became advanced to chief engineer of this company. In April, 1933, he assumed the added duties of assistant chief engineer of the Boston & Maine and in 1936, he became acting chief engineer of both the Boston & Maine and the Maine Central. On July 13, 1936, Mr. Morrill was named chief engineer of both roads, which position he held until his death.

**Dr. J. P. Kaster**, chief surgeon of the Eastern and Western Lines and Chief surgeon of the Hospital Association of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., died on December 13.

**James Stewart Patterson, Jr.**, who was elected assistant secretary of the Richmond, Fredericksburg & Potomac at a meeting of the board of directors in New York on December 15, died on December 16 on a train returning to Richmond, Va., after the meeting. He was 43 years old and had been secretary to the president since September, 1921.

**Robert Ridgway**, a consulting engineer at New York and an authority on subway construction and intra-city rapid transit matters, died of heart disease on December 19 at Fort Wayne, Ind. Born on October 19, 1862, at Brooklyn, N. Y., Mr. Ridgway obtained his first engineering experience as a chainman and instrumentman on the Northern Pacific, which company he served from 1882 to 1884. After leaving railroad service, Mr. Ridgway went to New York, where later he became identified with many large subway and tunnel construction projects and other municipal undertakings.





MERRY CHRISTMAS

HAPPY NEW YEAR

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## Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of October.

Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Number of road locomotives on line				
			Principal and helper	Light	Loaded (thous-)	Per cent loaded	Gross, excluding locomotives and tenders	Net, revenue and non-revenue	Serviceable			Per cent un-service-able	
									Not stored	Stored	Un-service-able		
New England Region:													
Boston & Albany.....1938	374	139,225	145,157	9,760	3,136	64.7	179,824	62,980	55	3	32	35.6	
1937	374	146,638	151,011	9,800	3,255	66.9	183,719	65,899	57	8	26	28.6	
Boston & Maine.....1938	1,937	318,170	390,274	23,057	11,431	68.5	641,715	244,831	124	1	108	46.4	
1937	1,941	288,201	322,266	27,179	10,269	68.9	567,651	210,335	122	5	120	48.6	
N. Y., New Hav. & Hartf..1938	1,859	365,210	459,149	31,585	12,815	66.1	703,424	260,051	168	3	98	35.7	
1937	2,006	352,721	435,787	27,749	12,617	68.9	676,244	259,975	180	22	68	25.6	
Great Lakes Region:													
Delaware & Hudson.....1938	830	216,706	300,963	33,560	8,056	64.2	503,478	238,193	108	95	55	21.3	
1937	830	236,639	320,773	36,300	8,646	67.6	527,781	256,301	126	109	32	12.0	
Del., Lack. & Western.....1938	983	338,643	384,258	54,834	12,570	69.1	724,107	286,938	121	5	87	40.8	
1937	983	388,732	435,244	59,975	13,651	70.4	783,687	320,353	140	11	72	32.3	
Erie (incl. Chi. & Erie)....1938	2,276	703,482	749,338	60,419	32,536	65.5	1,979,164	725,538	231	16	224	47.6	
1937	2,277	789,776	837,473	53,684	35,901	66.6	2,158,468	803,791	249	19	198	42.5	
Grand Trunk Western.....1938	1,027	258,553	260,712	2,042	6,717	62.1	414,232	143,596	68	..	46	40.4	
1937	1,027	277,402	281,306	4,290	7,879	64.0	477,938	174,884	77	..	46	37.4	
Lehigh Valley .....1938	1,267	299,445	333,158	54,048	12,712	66.3	792,368	337,672	120	2	115	48.5	
1937	1,290	355,497	392,445	52,499	14,414	67.9	901,592	402,380	130	5	140	50.9	
New York Central.....1938	10,651	2,590,143	2,748,380	181,164	88,687	59.6	6,035,334	2,531,445	831	137	506	34.3	
1937	10,681	2,979,643	3,156,492	177,586	103,075	60.0	6,872,819	2,809,648	917	150	423	28.4	
N. Y., Chicago & St. Louis.1938	1,672	485,201	493,082	6,401	18,022	63.9	1,089,263	405,767	147	9	42	21.2	
1937	1,672	511,143	518,251	7,071	18,540	66.0	1,107,658	428,002	159	16	21	10.7	
Pere Marquette .....1938	2,081	331,794	338,138	7,236	9,456	63.3	605,064	239,448	110	2	52	31.7	
1937	2,081	392,111	400,078	6,806	11,022	62.8	702,265	278,192	129	6	23	14.6	
Pittsburgh & Lake Erie....1938	233	69,132	70,918	.....	2,926	59.0	253,589	141,235	32	1	41	55.4	
1937	234	87,718	90,673	.....	3,381	58.1	294,831	162,238	35	14	22	31.0	
Wabash .....1938	2,421	566,739	578,148	12,304	18,458	66.6	1,077,568	388,357	136	12	131	47.0	
1937	2,421	601,577	616,724	13,864	19,185	68.5	1,105,676	416,715	153	24	114	39.2	
Central Eastern Region:													
Baltimore & Ohio.....1938	6,311	1,392,299	1,709,532	187,421	45,600	63.0	3,102,985	1,387,950	578	135	513	41.8	
1937	6,330	1,597,433	1,987,522	220,801	50,771	61.8	3,540,022	1,614,390	674	89	505	39.8	
Central of New Jersey.....1938	679	150,682	175,252	35,634	5,163	62.6	353,110	168,517	71	2	79	52.0	
1937	678	162,945	183,034	37,150	5,461	61.5	377,766	182,109	74	10	68	44.7	
Chicago & Eastern Illinois.1938	927	167,798	168,037	2,896	4,499	67.0	276,006	117,683	51	..	55	51.9	
1937	931	192,405	192,600	3,314	5,202	66.1	329,235	143,714	52	..	51	49.5	
Elgin, Joliet & Eastern....1938	435	84,210	85,151	1,113	2,069	59.8	159,483	76,794	47	5	30	36.6	
1937	435	107,405	109,199	1,819	2,585	58.3	204,645	100,698	55	..	27	32.9	
Long Island .....1938	390	31,750	32,748	17,625	338	50.3	26,400	9,914	33	5	10	20.8	
1937	393	30,506	31,432	15,757	299	50.8	23,551	9,191	31	11	7	14.3	
Pennsylvania System .....1938	10,003	2,625,818	3,214,684	368,776	102,580	61.7	6,918,392	3,009,699	1,149	201	1,016	42.9	
1937	10,015	3,207,961	3,704,303	424,296	118,498	63.2	8,051,946	3,678,932	1,376	325	571	25.1	
Reading .....1938	1,442	372,450	414,218	48,690	11,431	62.8	819,763	396,046	173	22	159	44.9	
1937	1,445	451,502	500,805	57,732	12,978	63.3	936,722	460,186	202	20	117	34.5	
Pocahontas Region:													
Chesapeake & Ohio.....1938	3,050	876,470	918,640	39,775	40,642	54.8	3,505,079	1,905,460	363	23	143	27.0	
1937	3,050	954,830	1,006,516	45,464	44,637	55.0	3,851,543	2,097,298	400	32	110	20.3	
Norfolk & Western.....1938	2,169	680,969	707,733	38,069	29,814	57.9	2,457,288	1,291,991	271	49	38	10.6	
1937	2,179	737,859	769,466	42,625	31,412	57.9	2,672,942	1,430,012	312	30	19	5.3	
Southern Region:													
Atlantic Coast Line.....1938	5,079	503,441	504,952	6,883	11,729	63.8	667,922	231,511	224	51	94	25.5	
1937	5,074	564,810	565,817	7,921	13,665	66.5	727,764	273,457	225	51	96	25.8	
Central of Georgia.....1938	1,886	256,505	258,626	3,884	5,762	71.5	318,854	124,774	89	..	34	27.6	
1937	1,886	256,250	258,443	3,395	5,515	70.9	305,249	121,101	102	..	19	15.7	
Illinois Central (incl. Y. & M. V.).....1938	6,540	1,354,282	1,365,241	25,559	38,925	63.4	2,502,304	1,047,429	628	10	215	25.2	
1937	6,541	1,530,380	1,541,044	29,091	41,729	61.8	2,724,833	1,123,975	645	43	171	19.9	
Louisville & Nashville....1938	4,928	1,054,819	1,133,066	29,462	26,788	59.2	1,905,159	901,891	318	11	209	38.8	
1937	4,931	1,198,207	1,304,050	30,075	28,886	58.0	2,091,877	1,001,295	368	53	127	23.2	
Seaboard Air Line.....1938	4,305	478,146	506,486	5,265	12,856	66.4	751,083	293,199	200	23	80	26.4	
1937	4,295	508,715	527,229	6,100	14,167	70.2	789,007	311,974	224	22	66	21.2	
Southern .....1938	6,561	1,367,582	1,390,105	20,602	31,418	66.7	1,823,346	723,996	485	16	204	28.9	
1937	6,596	1,393,300	1,416,271	21,762	31,741	66.8	1,817,326	736,262	541	1	212	28.1	
Northwestern Region:													
Chicago & North Western..1938	8,394	946,541	980,790	27,428	28,022	62.0	1,794,754	686,539	325	122	249	35.8	
1937	8,397	1,090,858	1,139,708	30,986	29,982	61.2	1,921,388	735,633	406	112	189	26.7	
Chicago Great Western....1938	1,450	285,063	285,652	13,510	8,393	61.2	526,559	183,532	67	..	26	28.0	
1937	1,450	313,623	314,821	10,140	9,267	61.7	568,582	202,438	71	..	22	23.7	
Chi., Milw., St. P. & Pac..1938	10,941	1,320,869	1,367,789	48,819	37,900	61.8	2,449,177	999,176	458	79	156	22.5	
1937	11,044	1,490,574	1,579,666	62,250	41,282	62.2	2,628,671	1,060,622	524	19	124	18.6	
Chi., St. P., Minneap. & Om.1938	1,619	217,903	228,299	10,269	5,088	64.8	315,602	128,379	100	15	23	16.7	
1937	1,636	250,882	264,489	13,555	5,851	63.7	369,313	146,470	111	8	26	17.9	
Great Northern .....1938	7,976	880,249	882,411	31,811	30,590	62.3	2,089,143	879,541	389	37	128	23.1	
1937	7,975	1,023,859	1,030,291	39,350	36,322	60.1	2,477,094	1,063,121	395	22	134	24.3	
Minneap., St. P. & S. St. M.1938	4,266	380,146	384,822	4,299	8,661	63.2	528,066	213,576	123	1	30	19.5	
1937	4,277	419,100	428,985	5,766	10,072	64.7	602,408	250,613	127	..	26	17.0	
Northern Pacific .....1938	6,423	691,941	722,608	34,826	22,874	68.6	1,373,307	580,486	335	31	97	21.0	
1937	6,423	784,657	821,637	43,548	25,592	66.9	1,558,200	644,698	367	16	76	16.6	
Central Western Region:													
Alton .....1938	912	202,417	217,608	1,088	4,726	65.7	288,255	107,667	59	11	24	25.5	
1937	912	230,731	242,864	1,786	5,266	62.7	334,806	125,509	67	..	30	30.9	
Atch., Top. & S. Fe (incl. 1938	13,500	2,142,347	2,306,792	113,902	63,896	59.8	4,191,493	1,305,326	622	27	283	30.4	
G.C. & S.F. & P. & S.F.)..1937	13,537	2,263,415	2,452,713	121,011	67,397	61.6	4,319,135	1,402,654	677	31	230	24.5	
Chicago, Burl. & Quincy...1938	8,907	1,251,424	1,296,168	47,513	36,951	62.5	2,336,212	917,464	468	20	74	13.2	
1937	8,934	1,503,889	1,559,297	56,709	44,04								



## 1938, Compared with October, 1937, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road, and year	Number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, excluding locomotives and tenders		Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per locomotive-day
	Home	Foreign	Total		Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders							
New England Region:													
Boston & Albany.....1938	1,023	4,542	5,565	2.6	18,965	1,321	463	20.1	409	31.5	5,432	159	59.6
.....1937	2,223	4,071	6,294	25.1	21,156	1,264	453	20.2	350	25.8	5,684	157	60.7
Boston & Maine.....1938	7,536	8,795	16,331	10.9	25,679	2,028	774	21.4	462	31.5	4,077	100	61.2
.....1937	7,466	7,943	15,409	12.5	27,018	1,979	733	20.5	444	31.5	3,496	98	48.9
N. Y., New Hav. & Hartf.....1938	8,110	11,642	19,752	10.4	26,496	1,968	727	20.3	359	26.8	4,513	104	64.0
.....1937	8,119	11,788	19,907	11.6	27,523	1,950	750	20.6	409	28.8	4,181	101	62.0
Great Lakes Region:													
Delaware & Hudson.....1938	7,796	3,736	11,532	4.2	32,464	2,336	1,105	29.6	673	35.5	9,257	105	43.7
.....1937	7,108	4,243	11,351	5.3	30,746	2,239	1,087	29.6	724	36.1	9,961	104	47.4
Del., Lack. & Western.....1938	12,397	6,499	18,896	17.9	38,697	2,169	860	22.8	500	31.7	9,416	126	70.5
.....1937	12,220	7,085	19,305	13.6	33,845	2,042	835	23.5	539	32.6	10,513	136	78.9
Erie (incl. Chi. & Erie).....1938	15,383	14,946	30,329	6.4	48,522	2,833	1,038	22.3	769	52.7	10,283	90	60.6
.....1937	16,521	17,775	34,296	4.8	46,520	2,754	1,025	22.4	780	52.3	11,387	95	67.9
Grand Trunk Western.....1938	5,141	6,372	11,513	16.0	32,983	1,611	559	21.4	415	31.2	4,510	92	81.3
.....1937	4,659	8,160	12,819	14.3	32,141	1,736	635	22.2	431	30.3	5,493	94	79.8
Lehigh Valley .....1938	10,873	9,547	20,420	7.5	48,993	2,669	1,137	26.6	532	30.2	8,597	108	56.2
.....1937	9,859	12,636	22,495	6.6	44,523	2,577	1,150	27.9	593	31.3	10,062	112	55.4
New York Central.....1938	94,372	68,334	162,706	21.4	37,984	2,354	987	28.5	505	29.7	7,667	99	72.8
.....1937	88,305	72,525	160,830	16.4	38,160	2,330	953	27.3	558	34.1	8,486	100	81.6
N. Y., Chicago & St. Louis. ....1938	6,274	7,933	14,207	5.7	41,159	2,248	837	22.5	932	64.7	7,829	82	88.2
.....1937	6,365	8,297	14,662	3.4	38,519	2,173	840	23.1	956	62.8	8,257	88	93.5
Pere Marquette .....1938	9,291	7,040	16,331	5.2	29,861	1,827	723	25.3	483	30.1	3,712	86	76.3
.....1937	7,968	7,628	15,596	4.7	27,810	1,792	710	25.2	577	36.4	4,312	92	94.7
Pittsburgh & Lake Erie.....1938	8,916	10,022	18,938	34.1	48,432	3,679	2,049	48.3	253	8.9	19,554	81	33.9
.....1937	8,624	9,948	18,572	29.1	47,355	3,379	1,859	48.0	281	10.1	22,365	82	42.3
Wabash .....1938	15,494	10,316	25,810	10.4	37,963	1,920	692	21.0	496	35.4	5,175	106	72.4
.....1937	11,874	10,551	22,425	5.4	36,858	1,855	699	21.7	592	39.8	5,552	114	74.4
Central Eastern Region:													
Baltimore & Ohio.....1938	56,943	25,530	82,473	20.8	30,151	2,262	1,012	30.4	545	28.4	7,094	133	53.4
.....1937	56,851	30,143	86,994	13.0	28,749	2,250	1,026	31.8	597	30.4	8,227	137	59.9
Central of New Jersey.....1938	10,515	10,873	21,388	32.3	28,385	2,502	1,194	32.6	257	12.6	8,006	129	57.4
.....1937	9,327	10,242	19,569	28.0	28,666	2,431	1,172	33.3	296	14.4	8,664	132	61.7
Chicago & Eastern Illinois. ....1938	3,163	3,397	6,560	9.4	29,297	1,649	703	26.2	603	34.4	4,095	117	54.5
.....1937	2,535	3,591	6,126	1.9	30,350	1,722	752	27.6	762	41.7	4,980	117	64.8
Elgin, Joliet & Eastern.....1938	8,460	3,178	11,638	6.7	17,638	1,938	933	37.1	217	9.8	5,695	107	48.3
.....1937	8,482	3,581	12,063	4.8	17,485	1,955	962	39.0	255	11.3	7,467	116	62.4
Long Island .....1938	364	3,395	3,759	2.8	6,063	859	323	29.3	81	5.5	820	286	51.5
.....1937	381	2,941	3,322	2.6	5,879	798	312	30.7	85	5.5	754	304	45.7
Pennsylvania System .....1938	193,668	53,127	246,795	20.3	39,250	2,680	1,166	29.3	389	21.5	9,706	108	54.6
.....1937	183,164	68,093	251,257	15.5	36,533	2,557	1,168	31.0	472	24.0	11,850	115	65.8
Reading .....1938	25,272	10,933	36,205	22.5	27,805	2,207	1,066	34.6	363	16.7	8,860	129	46.7
.....1937	21,746	12,940	34,686	10.9	25,509	2,080	1,022	35.5	429	19.1	10,273	136	59.0
Pocahontas Region:													
Chesapeake & Ohio.....1938	44,369	11,928	56,297	4.9	59,116	4,036	2,194	46.9	1,105	43.0	20,153	71	64.3
.....1937	43,185	14,131	57,316	1.0	57,344	4,091	2,228	47.0	1,196	46.3	22,182	73	67.9
Norfolk & Western.....1938	33,186	5,187	38,373	4.4	54,628	3,652	1,920	43.3	1,057	42.1	19,215	92	73.0
.....1937	32,623	5,370	37,993	2.6	54,411	3,662	1,959	45.5	1,250	47.4	21,170	93	78.2
Southern Region:													
Atlantic Coast Line.....1938	17,559	7,574	25,133	22.7	22,118	1,329	461	19.7	306	24.3	1,470	106	47.9
.....1937	15,909	9,151	25,060	17.7	21,436	1,291	485	20.0	360	27.0	1,379	109	53.7
Central of Georgia.....1938	4,579	2,995	7,574	2.0	23,836	1,246	488	21.7	551	35.6	2,134	115	75.2
.....1937	3,697	3,475	7,172	1.8	21,910	1,194	474	22.0	513	32.9	2,071	123	75.6
Illinois Central (incl. Y. & M. V.).....1938	26,878	19,850	46,728	4.1	27,763	1,859	778	26.9	729	42.8	5,166	124	57.4
.....1937	30,308	22,435	52,743	13.1	27,683	1,790	738	26.9	693	41.6	5,543	128	63.7
Louisville & Nashville.....1938	37,778	9,615	47,393	20.8	27,489	1,808	856	33.7	630	31.6	5,904	118	73.4
.....1937	33,408	10,799	44,207	13.2	26,406	1,749	837	34.7	765	38.1	6,550	127	83.6
Seaboard Air Line.....1938	11,301	6,281	17,582	3.7	25,740	1,595	622	22.8	578	38.2	2,197	115	60.3
.....1937	10,618	7,149	17,767	2.0	24,999	1,573	622	22.0	607	39.2	2,343	116	61.4
Southern .....1938	20,722	19,428	40,150	9.4	23,175	1,345	534	23.0	595	38.7	3,560	138	67.9
.....1937	19,237	19,982	39,219	9.9	22,154	1,317	533	23.2	606	39.1	3,601	143	64.4
Northwestern Region:													
Chicago & North Western.....1938	38,872	22,174	61,046	10.8	29,517	1,973	755	24.5	360	23.7	2,638	108	51.1
.....1937	36,683	21,830	58,513	8.7	27,505	1,826	699	24.5	404	26.9	2,826	115	58.3
Chicago Great Western.....1938	2,333	3,968	6,301	2.7	33,528	1,852	646	21.9	938	70.1	4,083	123	110.0
.....1937	2,183	4,737	6,920	2.3	31,597	1,815	646	21.8	924	68.6	4,504	130	119.4
Chi., Milw., St. P. & Pac.....1938	43,117	17,629	60,746	3.3	29,485	1,866	761	26.4	519	31.9	2,946	113	72.9
.....1937	41,743	20,250	61,993	2.4	28,099	1,773	715	25.7	540	33.8	3,098	119	86.7
Chi., St. P., Minneap. & Om. ....1938	3,077	5,207	8,284	10.6	18,953	1,462	595	25.2	478	29.2	2,558	109	59.0
.....1937	3,772	5,227	8,999	10.7	19,336	1,499	594	25.0	505	31.7	2,888	111	57.0
Great Northern .....1938	37,276	11,600	48,876	6.3	34,302	2,388	1,005	28.8	559	31.2	3,557	108	59.5
.....1937	36,338	13,310	49,648	4.9	34,377	2,437	1,046	29.3	680	38.7	4,300	107	69.8
Minneap., St. P. & S. St. M. ....1938	12,432	3,445	15,877	6.1	22,643	1,392	563	24.7	424	27.2	1,615	98	84.5
.....1937	12,350	4,481	16,831	3.2	22,777	1,444	601	24.9	467	29.0	1,890	100	94.3
Northern Pacific .....1938	29,365	5,452	34,817	9.1	30,260	1,992	842	25.4	516	29.7	2,915	136	58.4
.....1937	29,408	6,710	36,118	7.5	29,580	1,992	824	25.2	572	33.9	3,238	137	67.6
Central Western Region:													
Alton .....1938	1,409	6,261	7,670	10.2	34,357	1,434	536	22.8	461	30.8	3,808	114	80.1
.....1937	2,403	6,402	8,805	14.6	33,444	1,457	546	23.8	460	30.8	4,439	128	85.7
Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.).....1938	71,515	12,108	83,623	11.4	36,993	1,964	611	20.4	495	40.5	3,119	113	89.6
.....1937	69,228	15,926	85,154	7.7	35,585	1,914	622	20.8	548	42.7	3,342	114	93.7
Chicago,													

## OKONITE PRODUCTS

### Okonite Rubber Insulated Wires and Cables

Any Size and Number of Conductors. Any Voltage.  
Any Service, Braided, Lead Covered, Steel Braided.  
Steel Taped, Steel Wire Armored.

Railway Signal Wire • Train Control Wire • Car Wire  
Locomotive Head Light Wire • Ignition Wire  
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Plough Leads • Pot Heads • Okonite Cement  
Okobestos • Okojute • Candee Weatherproof Wire  
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### Okonite Varnished Cambric Wires and Cables

Any Size and Number of Conductors. Any Voltage.  
Any Service, Braided, Lead Covered, Steel Braided.  
Steel Taped, Steel Wire Armored.

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